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May 6, 1963

RAILWAY AGE WEEKLY

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Milestone For the Brotherhoods

p. 14

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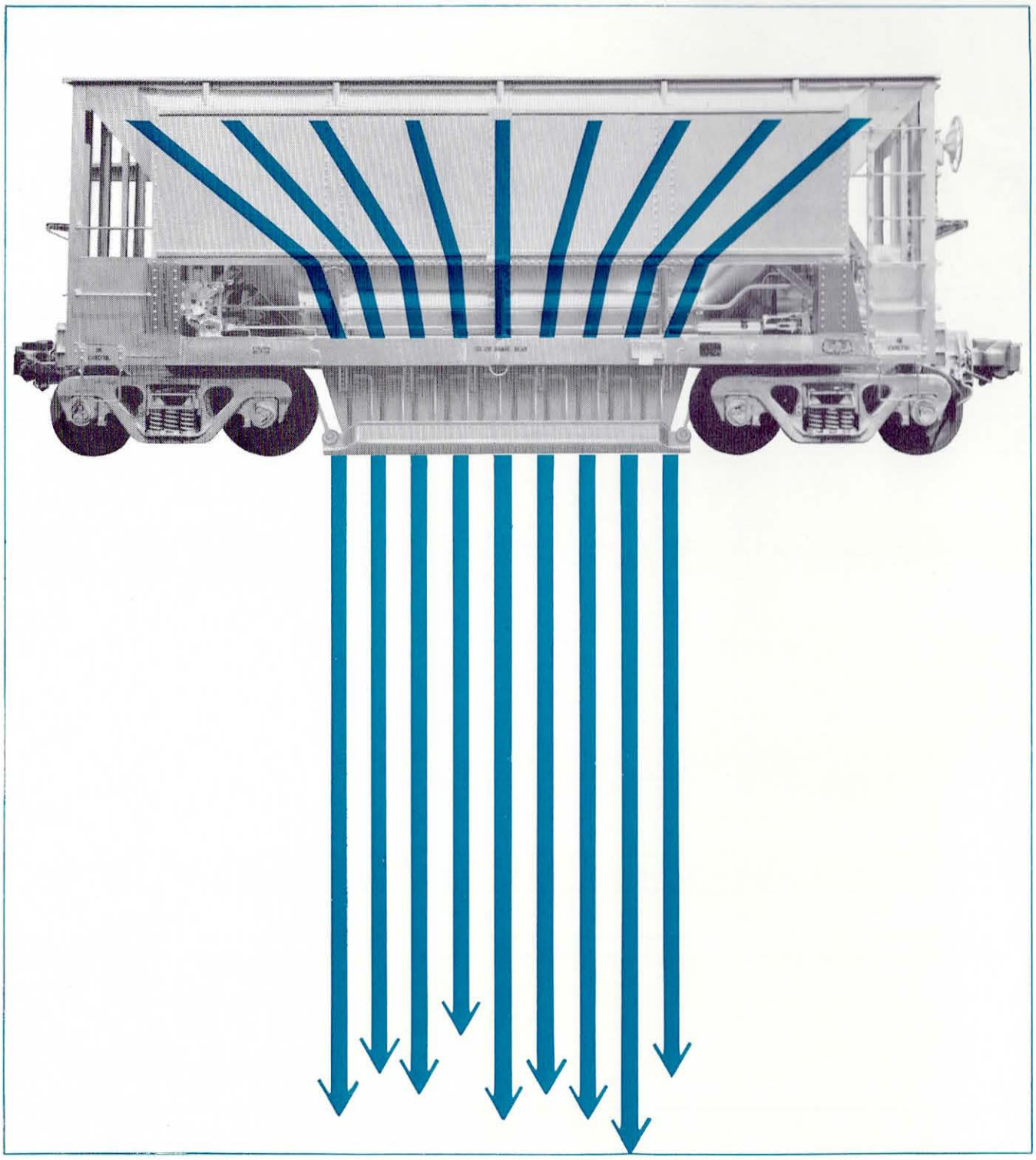

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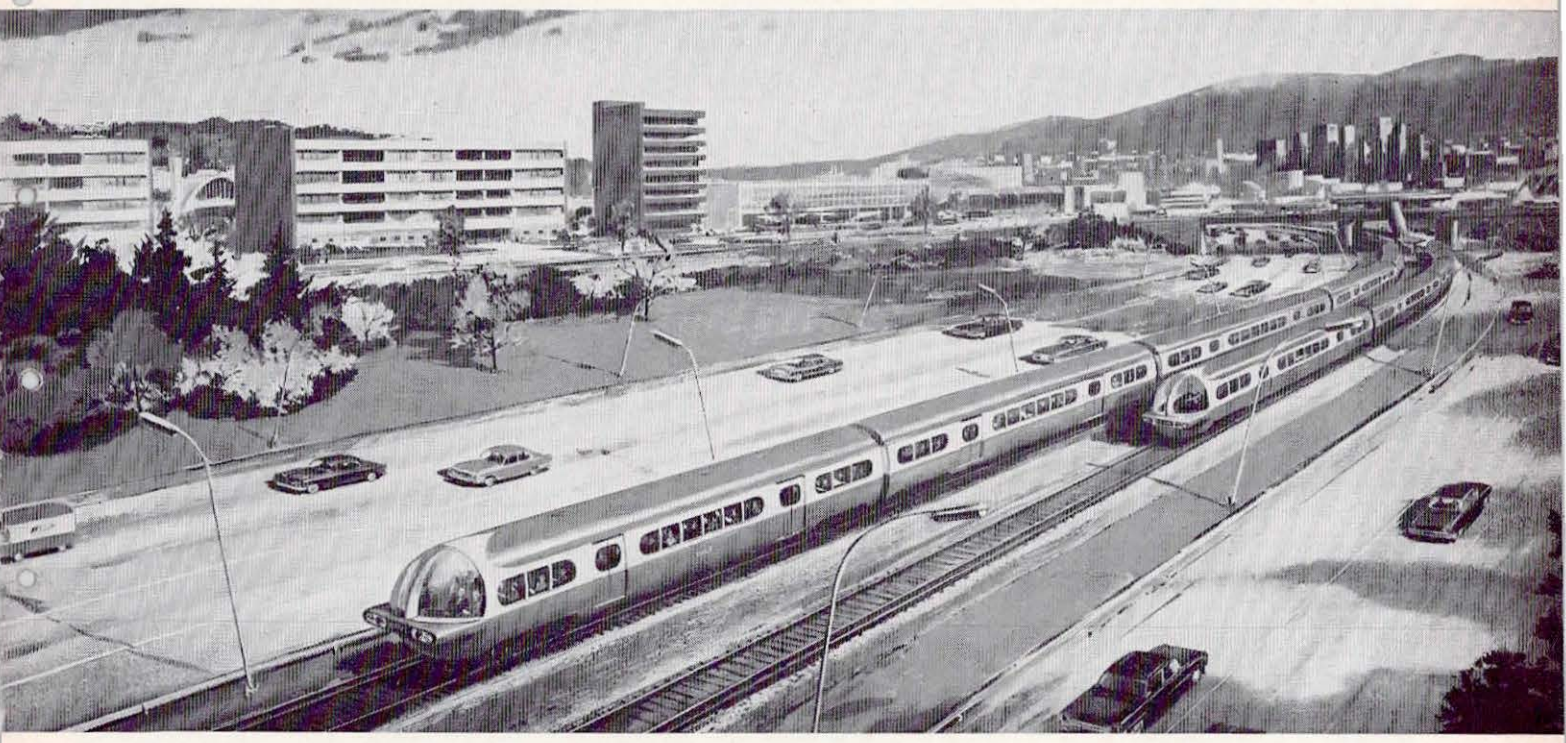

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RAILWAY AGE WEEK AT A GLANCE

May 6, 1963 • Vol. 154, No. 17

Board 154's deadline nears

Next scheduled stop on the work-rules merry-go-round is an emergency board's report to the President, due May 11. Signs still point to a peaceful settlement.....**p.9**

Transport bills at hearing stage

As the '63 round of hearings opened, Chairman Harris of the House Commerce Committee assailed generalities, asked witnesses to be more specific **p.10**

Milestone for the brotherhoods

The 65,000-member Brotherhood of Locomotive Engineers, oldest of the railway labor organizations, this week celebrates the 100th anniversary of its founding.....**p.14**

Huge pipes replace old arches

The Chesapeake & Ohio recently completed the installation of two steel Multi-Plate culverts inside the arches of a masonry bridge that was built in 1910.....**p.22**

Mechanical functions require new methods

New ideas and techniques and up-to-date management methods are needed to keep mechanical departments abreast of today's rapidly changing railroad situation.....**p.23**

PRR, Reading to get more city-aid cars

The 55 multiple-unit commuter coaches, being built by the Budd Co., are an adaptation of the Pioneer III passenger coach. Deliveries are to be completed by autumn.....**p.34**

Space-age railroads: Technology is vital

Transportation developments that ranged from rapid transit to automated freight trains, and their future significance, were reviewed at an Atlanta engineering conference.....**p.38**

Computers: Aid to transit planning

Two Kaiser Engineers specialists describe how computers—given the proper basic information—can help in the planning of mass-transport systems.....**p.40**

how to handle a frog

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RAILWAY AGE WEEK AT A GLANCE

Piggyback problems explored

The future of TOFC is especially promising, the experts agree—but they also see threats from both within and without the rail industry that could stunt its growth.....**p.44**

The Action Page: Our unions—a challenge

As conditions change in the railroad industry, management and union policies must change with them. A realistic approach to common problems will serve all interests.....**p.50**

Short and Significant

Estimated revenue-ton miles . . .

are running 2.5% ahead of 1962, although carloadings are down by 3.4%, according to the AAR, which has just introduced the ton-mile factor into weekly loading reports.

Rates of the Alaska Railroad . . .

have been brought under ICC jurisdiction. That's the effect of Executive Order 11107, issued April 25 by President Kennedy. The ARR is government-owned.

Bulky, fragile auto parts . . .

moved from Detroit to Oakland, Cal., with no damage on the first trip of Southern Pacific's experimental 86½-foot "Hy Cube Hydra-Cushion" box car.

New, fast piggyback service . . .

between Chicago and Philadelphia—providing second-morning delivery in both directions—was inaugurated May 3 by Erie-Lackawanna, Reading and Jersey Central.

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Current Statistics

Operating revenues	
12 mos., 1962	$9,439,894,771
12 mos., 1961	9,187,122,899
Operating expenses	
12 mos, 1962	7,418,555,063
12 mos., 1961	7,271,159,800
Taxes	
12 mos., 1962	905,083,609
12 mos., 1961	991,555,905
Net railway operating income	
12 mos., 1962	725,645,679
12 mos., 1961	537,694,880
Net income estimated	
12 mos., 1962	574,000,000
12 mos, 1961	384,000,000

Carloadings revenue freight	
17 wks., 1963	8,840,877
17 wks., 1962	9,151,960
Freight cars on order	
April 1, 1963	21,307
April 1, 1962	15,264
Freight cars delivered	
3 mos., 1963	9,545
3 mos., 1962	8,895
Serviceable cars	
April 1, 1963	1,414,166
April 1, 1962	1,461,833
Cars awaiting repairs	
April 1, 1963	128,690
April 1, 1962	136,151

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WORK RULES

Board 154's Deadline Nears

All signs last week pointed to the work-rules emergency board's going to the limit—its May 11 report to the President. But most observers still figured that a strike can be avoided.

Emergency Board 154 presses on toward its deadline this week—distressed but not discouraged.

The first three weeks of the board's 30-day statutory life apparently produced little but negatives. Board Chairman Samuel I. Rosenman sees a "possibility of the parties agreeing on a major part of the items in dispute." But he also sees the possibility of a strike "unless the parties get closer together."

● **No concessions.** Meetings with carrier and brotherhood negotiators in Washington, Chicago and New York, Judge Rosenman noted, resulted in "no express concessions I would consider material." As of late last week, he said, carriers and ops were "almost as far apart as they were when we started."

Clearly, the board's heaviest pressure was brought to bear when sessions were shifted from Chicago to New York. Judge Rosenman vowed to keep the talks going "days, nights and weekends, if we find it profitable." But, he emphasized, there will be no request for an extension of the board's life beyond May 11—when its report to President Kennedy is due—unless the parties move from the fixed positions built up over the four-year course of the work-rules dispute.

● **The public's role.** There had been speculation that the board would continue its mediatory efforts up to June 11 when, as matters now stand, the carriers would be free to make rules changes and the unions would be free to strike. But, Judge Rosenman warned, "if the parties remain in their present attitudes, it wouldn't do much good for us to continue."

Indications are that the board hopes to rely on the force of public opinion to prevent a crisis. Still, Judge Rosenman said, there is "such a thing as backing into a strike by indifference." And he noted that "there is perhaps too much lethargy on the part of the American public now on the possibility of a strike."

● **Fireman-off dispute.** Most of the board's early conferences were with carriers and brotherhoods separately, and most of the discussion centered on the fireman-off issue. But the board brought the parties face-to-face May 1, and other issues were introduced.

Only Judge Rosenman and law professor Nathan P. Feinsinger were on hand for last week's sessions. The third board member, university president Clark Kerr, was due to rejoin the panel May 6. His assignment: to handle discussions of the wage-scale changes proposed.

● **Most issues probed.** Judge Rosenman's whirlwind approach to the complex problems was perhaps best illustrated last Wednesday. In three sessions, with various groups, he explored issues involving crew consist, interdivisional runs and combination of road and yard service. Then in an evening meeting, carrier and brotherhood negotiators continued talks on establishment of interdivisional runs while the judge met with representatives of the Switchmen's Union.

Wednesday's talks also involved fringe-benefit issues raised in the ops' notices—and the problem of what happens in the event of future technological changes.

● **Some progress.** At the close of the daylight conferences, Judge Rosenman indicated that there was some indication—though very little—that the parties were ready to move. With the night session between management and union representatives, he saw a sign of progress.

But, the board chairman warned, time is fast running out. In all probability—unless major advances can be made—the board will begin writing its report to the President May 7 or 8.

● **Memo? No comment.** Meanwhile, Judge Rosenman had no comment on reports the board had given a confidential memo to both sides, proposing arbitration procedures and setting certain time limits. But he did concede that arbitration was one of the main subjects discussed—in the sense that terminal arbitration might be employed once guidelines were set.

Talks on the highly complicated wage-scale issue will apparently be held up until Mr. Kerr arrives in New York this week—which leaves only a day or two for talks before the board hits its report-writing stage.

● **Report likely.** Most observers last week were not looking for any firm move toward settlement in advance of the report. The greater part of the board's time then had been spent on the fireman-off question—and, although top officers of the Brotherhood of Firemen & Enginemen were on hand, President H. E. Gilbert left May 1 to meet a commitment in Colorado and wasn't expected back in New York before May 7.

While Chairman Rosenman evidenced few signs of optimism, however, there were other indications that settlement of the dispute is perhaps at hand.

● **Summer settlement?** One observer —who earlier forecast an agreement in early autumn—changed his prediction to June or July. At the moment, the carriers appear to hold the high cards. Brotherhood spokesmen call attention to points on which they've moved off dead center. And both sides are talking with one eye cocked toward Congress, which is already considering a compulsory-arbitration bill to deal with maritime-industry strikes and has measures in the hopper to provide for government seizure in emergency strike situations.

Transport Bills At Hearing Stage

The '63 round of hearings on the 'Kennedy bills' got under way with a Congressional plea for the 'whole picture'—and fewer 'canned statements'—from witnesses. Truckers testified first.

The chairman of the House Committee on Interstate and Foreign Commerce, Rep. Oren Harris (D.-Ark.), last week expressed hope that witnesses at the committee's hearings on bills to implement President Kennedy's transportation program would not appear with "canned statements" and no authority to discuss the "whole picture" as to needed transport legislation. The chairman made this statement as the committee opened its 1963 series of hearings on the "Kennedy bills" by receiving, from American Trucking Associations, a presentation in opposition to the President's proposal to end minimum-rate regulation for the transportation of commodities in bulk and agricultural products.

The Senate Commerce Committee was scheduled to resume its consideration of the bills this week with hearings before its surface transportation subcommittee. The minimum-rate bills before the House and Senate committees are H.R. 4700 and S. 1061, respectively. Also before the committees are H.R. 4701 and S. 1062 to implement various other recommendations of the President's program, but practically all of the talk is about the minimum-rate bills.

• **Second time around.** Both committees held some hearings last year on similar bills which were before the previous Congress. Among presentations then received were those of the railroads, which support the President's program in its entirety, and the water carriers, which registered vigorous opposition to the minimum-rate proposal.

The Chamber of Commerce of the United States, which supports the minimum-rate bill but wants it amended in some respects, is scheduled to make the opening presentation at the Senate subcommittee's hearings this week. Others scheduled to appear include the Railway Labor Executives' Association, which will be in opposition to the minimum-rate proposal which railroads view as the "heart" of the President's program.

ATA's presentation before the House committee included statements by four of its officers and by presidents of two truck lines. The latter were Donald P. Kipp of Kramer-Consolidated Freight Lines and J. David Brothers of New Dixie Lines. The ATA officers were W. A. Bresnahan, assistant managing director; Peter T. Berdsley, general counsel; James F. Pinkney, chief counsel, public affairs; and C. Austin Sutherland, managing director, National Tank Truck Carriers.

• **Generalities challenged.** Questions asked of them by committee members reflected dispositions on the part of Chairman Harris and his colleagues to challenge general statements and charges with calls for specific supporting examples. Chairman Harris also admonished the witnesses to avoid getting "so inculcated" with selfish considerations of competition that "you can't see the forest for the trees." The chairman also said: "I can't help but believe that we're talking too much of 1919 and 1887 when we're now living in 1963."

These and other comments by Mr. Harris reflect his view, as stated in a recent speech, that "some form" of transport legislation should be enacted this year (RA, April 1, p. 34). He also said in that speech that "talk about a compromise" on the President's proposals is "understandable" because, "in a field so highly competitive as the transportation industry, legislation is often the result of compromise."

In that connection, however, several committee members suggested—and some of the ATA witnesses admitted—that the proposal to repeal present exemptions as an alternative to enacting the minimum-rate bill is politically unrealistic. That is the position of the railroads, but the alternative has been supported by several opponents of the minimum-rate bill, including truckers and the ICC.

Watching Washington, which usually appears in this space, is on page 44 of this issue.

• **Trucker sabotage?** ATA's Bresnahan was one of those who conceded that the enactment of the alternative proposal was not politically possible. His prepared statement, however, had noted President Kennedy's reference to the alternative as one way to bring about equality.

"Our industry," Mr. Bresnahan added, "has made it clear that we are more than willing to accept this approach. The railroad attitude toward this approach, despite their talk about equality, is best indicated by the fact that our efforts to promote it were characterized by the Association of American Railroads as 'sabotage'."

ATA's assistant managing director went on to quote from RLEA Chairman George E. Leighty's recent speech, as it was prepared for delivery, before the National Press Club (RA, April 29, p. 10). The quotation included Mr. Leighty's charge that the railroads are seeking "freedom to drive competitors out of business with a bankrupting rate war that would be harmful to shippers, the general public, and the smaller railroads."

Mr. Bresnahan's statement in general was a charge that the railroads are seeking to destroy the ICC's minimum-rate control over bulk and agricultural shipments and, at the same time, escape antitrust laws applicable to all other business. "The railroads," he said, "have been making a plausible and appealing argument for equality. What they are actually seeking is a special advantage—a privileged niche in the American free enterprise system that is not enjoyed by any other business in the United States."

• **Antitrust question.** Along the same line, the ATA official also had this to say:

"The railroads and their supporters among the shippers refuse to accept all of the antitrust provisions which apply to the exempt carriers. They apparently hope to prevail upon this committee and the Congress to modify the legislation. . . . You are being asked to amend H.R. 4700 so that it removes minimum-rate regulation on 70% of railroad tonnage and, at the same time, continue to grant immunity from the antitrust law prohibition against 'price fixing'—referred to in the transportation business as collective rate-making or conference rate-making.

"The railroads and their big-shipper supporters have made it clear that they do not support H.R. 4700 unless it is amended to allow collective rate-making with immunity from prosecution by the Department of Justice. The so-called exempt carriers have no such immunity."

Among Chairman Harris' calls for specific information was a question ask-

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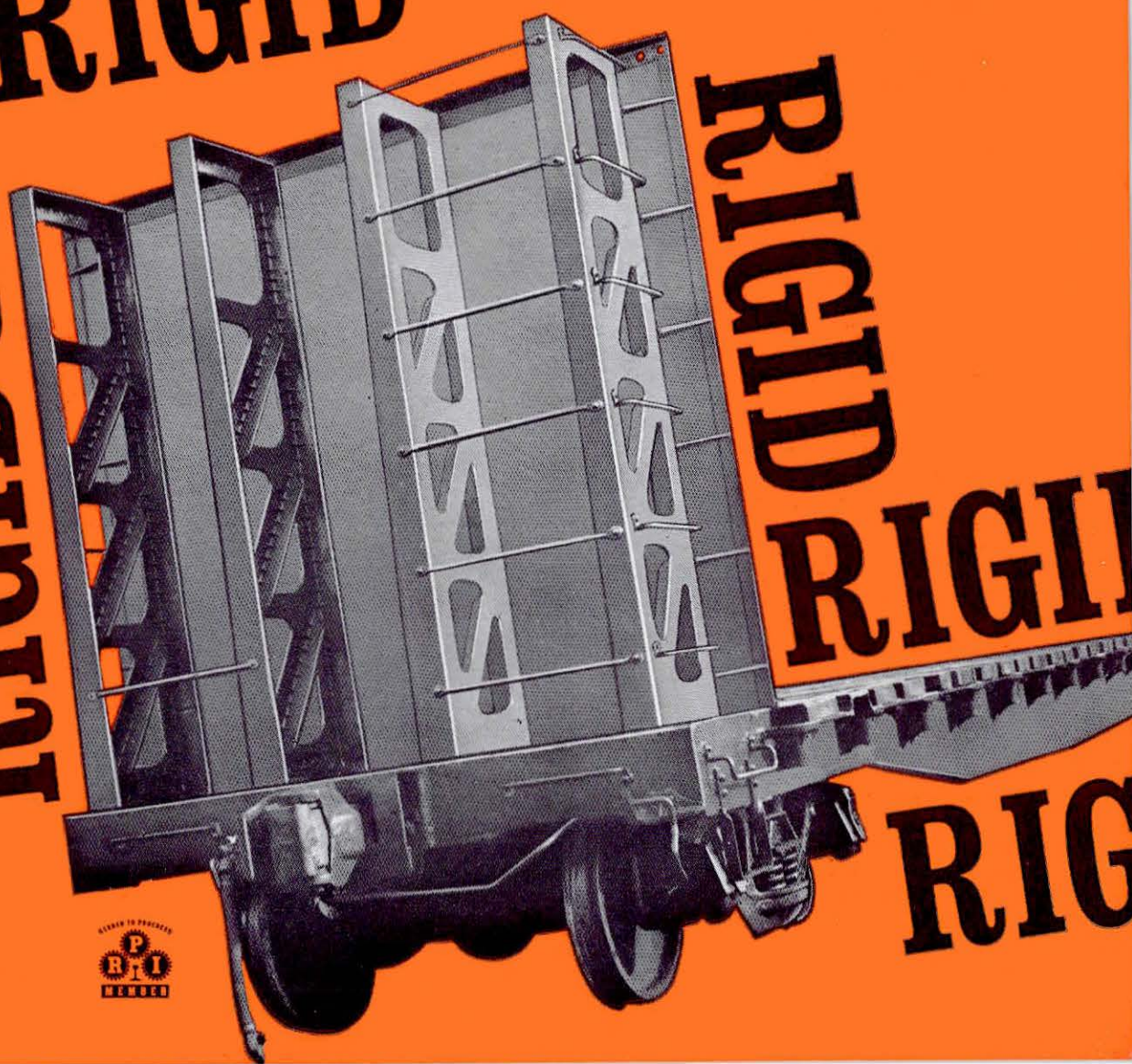

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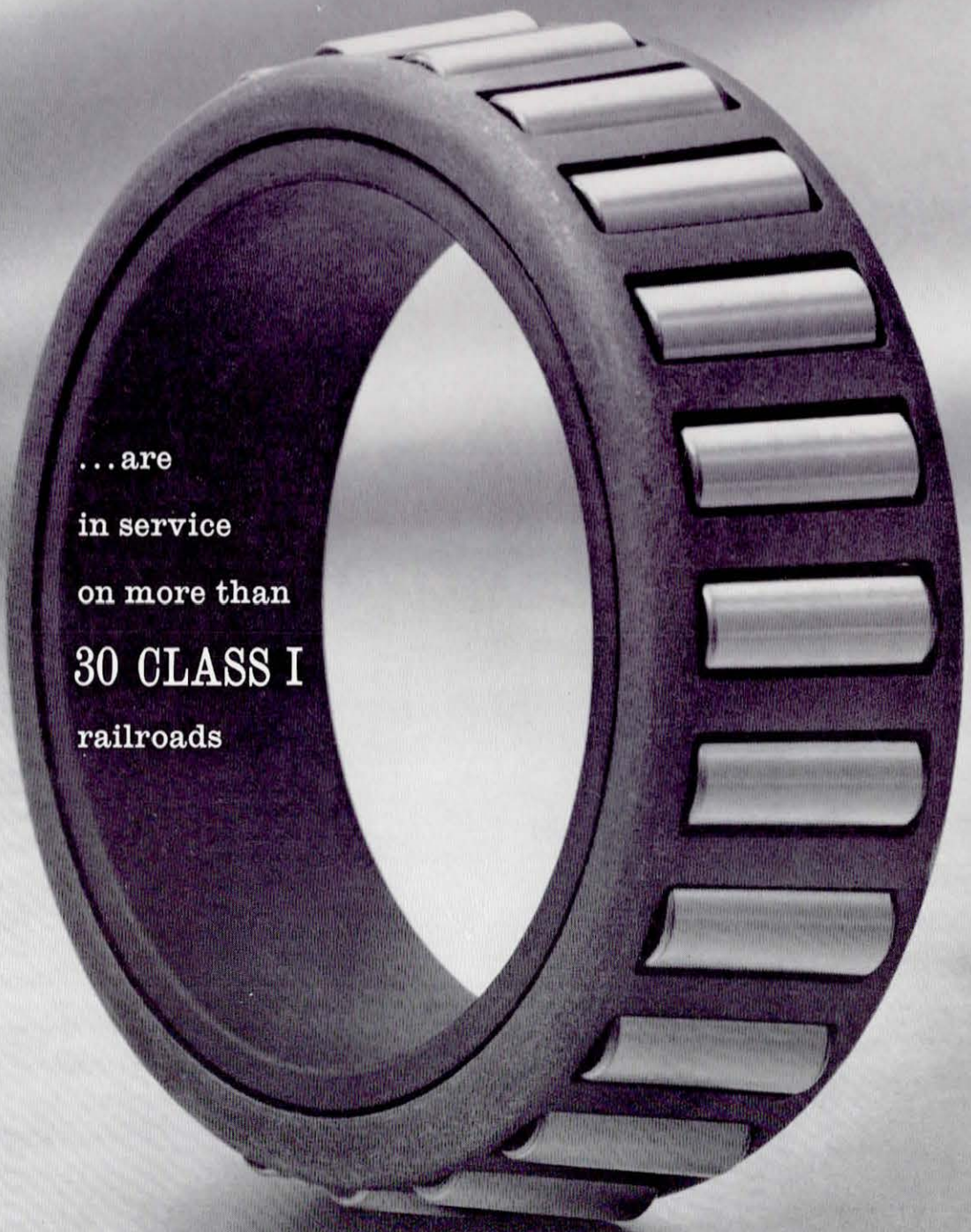

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ing Mr. Bresnahan if he knew of any important case in which antitrust laws had been applied against water carriers or truckers. The witness could recall none, but agreed to see if he could find such a case and note it on the record.

● **Bresnahan balks.** Chairman Harris' call for witnesses who could discuss the "whole picture" came after he failed to get from Mr. Bresnahan an answer to a question asking if there is any part of the interstate commerce act which needs "strengthening or equalizing." The witness said he was "not prepared to get into that."

President Kipp of Kramer-Consolidated Freight Lines discussed at some length his view that enactment of the minimum-rate bill would have an adverse effect on the ICC's power to prevent discrimination and preference.

Attached to Mr. Kipp's statement was an exhibit which purported to show what traffic the railroads might gain if the minimum-rate bill were enacted. Committee Chairman Harris challenged the statement by reference to its showing as to coal and coke traffic. That showing indicated that the "potential rail traffic" was all of the coal and coke traffic now moving by rail, highway and water. When Mr. Harris pointed out that the "potential" exceeded total coal production, Mr. Kipp conceded that his figures included duplications, such as counting separately as rail and water traffic the same coal which now moves over rail-water routes.

The concession prompted Mr. Harris to make this comment: "This showing is something that is not a fact. This is information you should review. You know, as well as I know, that there is a lot of traffic in there that would never go to the rails. We haven't got to the point where the railroads can run trains on water."

● **No crisis seen.** President Brothers of New Dixie Lines undertook to refute railroad contentions that there is a "crisis in transportation," as he put it. He denied that there is now a crisis but predicted that there would be one "if the railroads succeed in selling the Congress the deadly idea of cutting away the ICC's control over minimum freight rates."

"What we have today are 'railroad problems' rather than a 'railroad problem,'" Mr. Brothers also said. "Today the financial ills of any ailing railroad most often can be traced to unprofitable passenger service and heavy investment in obsolete facilities."

Mr. Brothers had figures and charts which he interpreted as a showing that "the movement of freight by railroad is still a pretty profitable business."

● **U.S. Chamber's position.** The U.S. Chamber of Commerce's presentation in favor of the minimum-rate bill, which is scheduled to be made to the Senate subcommittee May 6, will be based on a report released recently by Gerald W. Collins, manager of the Chamber's transportation and communication department. While the report is generally favorable, it does call for antitrust safeguards. At the same time, however, it calls for continuance on the present basis of Bulwinkle-Act clearances, i.e., continuance of immunity from the antitrust laws for carrier rate procedures approved by the ICC.

The report has this to say: "In view of the fact that the ICC will still have authority to deal with discrimination and preference problems, the full quota of antitrust statutes will not be necessary to protect against destructive rate practices. Congress, therefore, should delineate the appropriate statutes required so that a duplication of regulation will not result."

As to preservation of Bulwinkle-Act procedures, the Chamber report states specifically that provisions now in the minimum-rate bills to limit such procedures to through routes and joint rates "should be eliminated." That is also the position of the National Industrial Traffic League, which has made the proposed elimination a condition of its support of the bills.

RLEA's opposition presentation is expected to be along lines of the statement by its chairman, G. E. Leighty, which was noted above. The presentation was previewed in an article which appeared in the May 4 issue of Labor, organ of the railroad unions. "RLEA Fights 'Return to Jungle' on the Railroads," said the article's headline. Alleging that the railroads already have a "privileged status" in that they are "exempt from antitrust laws in rate-making," the article went on to say:

"The additional freedom they now seek would permit them to engage in highly selective, ruthless price cutting to eliminate competition, to hasten the elimination of supposedly unprofitable branches, and to exert more pressure on behalf of rail mergers. This would mean only less railroad service, less competition, less railroad traffic volume, less railroad employment, and higher prices to the public."

Think BIG . . . Many in the Industry Are Doing it

LEWIS

Wouldn't management be well advised to think in terms of what size and capacity equipment will be needed to meet requirements ten years hence, instead of ordering in terms of what is popular today?

Not too long ago rails came in standard lengths of 33 feet, then went to 39. A few roads started welding rails into lengths of 78. Now it is common for rails to be butt-welded into quarter-mile lengths before being laid. Just a few years ago single diesel-electric units moved over the 2,000 hp range. Now single units come rated at up to 2,500 hp, the diesel-hydraulic at 4,000 hp. It is not much of a secret that all three domestic builders have plans for single units rated at 5,000 or more hp.

Until not long ago the 40-foot car was so much of a standard that it was a measure for determining car capacity of sidings. Now most box cars ordered are 50 feet and occasionally larger. One road is "jumboizing" post-war 40-foot cars, inserting a mid-section to stretch them to 50 feet. One major shipper is expected to ask the railroads to provide a fleet of 80- or even 90-foot cars to cut its distribution costs and it is not unlikely that such equipment will be ordered in large numbers in the near future.

"Dynamic" best describes the growth pattern of tank cars. Capacity of 8,000 to 10,000 gallons was the norm for many years. Then sizes suddenly swelled to 20,000 and 30,000, and now the latest of the distended-belly cars will hold 50,000 gallons.

Like the signs often seen in offices admonish, NOW IS THE TIME TO PLAN AHEAD, time to THINK BIG. Of course, many railroads and many suppliers already are.

—Robert G. Lewis

BLE Begins Its Second Century

Rail unions have expanded, grown strong, in the 100 years since the founding of the Brotherhood of Locomotive Engineers. But BLE's grand chief still sees 'tremendous challenges' ahead.

Organized railway labor rolls past a significant milestone this week—the 100th anniversary of the founding of the senior organization, the Brotherhood of Locomotive Engineers.

With the work-rules case still unresolved, most observers would agree with Grand Chief Engineer Roy E. Davidson's comment that "tremendous challenges" lie ahead, and that the BLE "has never faced so many difficult problems as it does today."

● **Problems and solutions.** Still, past problems—and there have been critical ones—have always been solved, and the record of the past century shows the BLE (and the labor organizations which followed it into being) shoulder-to-shoulder with the carriers far more often than head-to-head. And Mr. Davidson remains confident: "Railroads remain the backbone of transportation in both the United States and Canada, and they are destined to continue as the most economical, efficient and dependable carriers. The Brotherhood of Locomotive Engineers will maintain its vital role, too, if it is not content with past glory and adapts to competition and change."

● **Struggles and successes.** Over the years, the BLE has grown strong, has won respect as usually a stable, militant yet generally moderate organization. But the past glory and the present strength—65,000 members in 890 divisions—didn't come without a long and sometimes bitter struggle.

The BLE—originally the Brotherhood of the Footboard—was founded at a time when few unions existed, and those that did were seldom popular. The organization's first grand chief was discharged by his railroad as a "disturber." The second resigned under fire because he refused to authorize strikes. The third had the misfortune to be in office during a strike (1888-89 on the Burlington) which nearly wrecked the union. He spent the last 14 years of his life trying to rebuild and unify the organization.

● **Expansionist era.** With the turn of the century, the BLE entered a new era of expansion. Warren S. Stone, grand chief from 1903 to 1924, led the brotherhood into a series of financial activities (as well as leading the fight for the basic eight-hour day on railroads). Alvanley Johnston, whose tenure covered a quarter-century (1925-50), guided the union through a period of consistent gains in wage rates and work rules. Guy L. Brown took over in the early Fifties and, in difficult times, earned a reputation as a statesman among labor leaders before ill health forced his retirement in 1960. He was succeeded by Mr. Davidson, who won unanimous election in his own right in 1962—the first grand chief to be unopposed since the organization's 1942 elections.

Railway labor's affairs, however, haven't always gone so smoothly, either before or after the 1863 meetings of locomotive engineers in Marshall and Detroit, Mich., which produced the first real grouping of rail workers.

● **Early failures.** Previous attempts to organize railway employees ended in failure—but once the BLE established itself, organization of many other employees along craft lines came quickly.

The Order of Railway Conductors (the "& Brakemen" was added not long

JFK to the BLE:

"I am delighted to have this opportunity to express my warm wishes and congratulations to the Brotherhood of Locomotive Engineers on your Centennial Anniversary.

"The story of American growth and expansion has been, in a great measure, the story of American railroading. Your Brotherhood has helped to write a brilliant chapter of our history, not only in expanding the geographic horizons of this nation and helping to create our great markets but in fostering proud and independent unionism.

"The members of your Brotherhood have been symbols of the progressive industrial change that has united a continent. Today, the acceleration of change and its impact upon our labor force is one of the major problems we confront. To make change serve our Nation without harming individual Americans is a task demanding our most creative industrial relations.

". . . The Brotherhood of Locomotive Engineers, oldest of railroad organizations, can take justifiable pride in its traditions of responsibility and achievement. The last century is a warrant that the future will be characterized by similar contributions to your membership and to the country at large."

—John F. Kennedy

ago) was formed in 1868. Five years later, the Brotherhood of Locomotive Firemen & Enginemen came into being. In 1883 the Brotherhood of Railroad Trainmen was established, to complete organization of the so-called "Big Four."

• **Non-ops organize.** Non-operating unions were slower to form—but, led by the Brotherhood of Maintenance of Way Employes and the Brotherhood of Railroad Telegraphers (both organized in 1886), the non-ops came on with a rush, and the three decades between 1880 and 1910 were jammed with union organizational meetings. (Last of the ops to form was the Switchmen's Union of North America, organized in the 1890s.)

The early days were rugged. Many managements saw unions as unnecessary, undesirable, even un-American—although one of the main aims of the brotherhoods then was to provide means for members to get insurance. This function is still a major one—but it wasn't long after their organization that the brotherhoods started playing the role that has been their biggest one: collective bargaining.

• **20 years of conflict.** Management, naturally, resisted union demands, and the last two decades of the 19th century were years of almost continuous conflict between carriers and unions (including the American Railway Union, the horizontal organization headed by Eugene V. Debs which ranked among the most militant of unions—and didn't survive).

Even the BLE itself was nearly torn apart in the 1890s, after the bitter Burlington strike and the atmosphere of dissension it created.

After 1900, however, relative calm descended—and the stability and maturity of both rail management and the brotherhoods began to make itself felt in bargaining relationships.

• **Post-war crisis.** In 63 years, the major crises have come during periods of post-war re-adjustment. As Judge Samuel I. Rosenman, chairman of the work-rules emergency board, pointed out recently, "This industry has had a good record of peaceful collective bargaining"—and the record takes on an even brighter cast when it's compared with the record of recurring strife in other industries whose organizations, though larger and more powerful than the railroad brotherhoods, may lack the maturity which rail unions generally display.

Able leadership

The brotherhoods have, usually, been fortunate in recent years in the caliber of their leaders—men who have planned carefully and fought hard for their organizations' goals, through bargaining and through legislation. Their efforts (coupled with the solid foundations laid in the 1800s) made railroad employees, in a real sense, aristocrats of labor.

• **Railroading changes.** But change comes to all institutions, and railroads are no exception. Over the past 15 years, tremendous technological advances—perhaps typified best by the diesel-electric locomotive, electronic devices and the computer — have changed whole segments of railroad operation. At the same time, traffic solicitation has become a fight-for-every-ton proposition—and rail freight salesmen show many scars as souvenirs of battles with motor carriers, barge and pipeline operators. Only recently (and only in certain areas) have the railroads bounced back—and it's been technological progress, willingness and ability to invest in new types of equipment and willingness to scrap outmoded rate-making patterns that have keyed the revival—modest on the average, but occasionally spectacular.

• **Problems for unions.** Both advancing technology and declining traffic, however, have put new strains on the brotherhoods—particularly since the carriers have launched the current effort to update work rules.

In a way, brotherhood chiefs today

The railroad brotherhoods in action—as allies of the carriers . . .

The brotherhoods have given solid support to legislative proposals to aid the industry. They've also stood with the carriers in such proceedings as the ICC's investigation of grade-crossing accidents—because their members know first-hand (below) the agony of suspense. Blaring RDC horn—emergency brake application—will the truck stop?

are under heavy pressure because they, or their predecessors, were too successful yesterday. Management spokesmen concede that in the past the industry "entered into agreements which it should not have made and should not have been required to make, even though some roads could then afford such agreements." Outside influences dictated certain bad deals, the carriers contend. Wartime pressures, or the desire to avoid a strike at any price, also contributed.

● **No more 'luxuries.'** But, say the carriers, the industry can no longer afford "the luxury of unnecessary employees, of payments for work not needed nor performed, of restrictions as to operational efforts that are not imposed on any other industry. We must relieve ourselves of those burdens. . . . Railroads must have freedom to take advantage of technology as it can improve their competitive position—for sheer survival."

Some of the burdens which old agreements produced can probably be traced, at least indirectly, to the day in 1902 when the Conductors first applied the principle of the concerted movement.

● **Conductors find a way.** Brotherhood negotiators, talking to individual managements, often found themselves stymied by the argument that competition would not permit Road A to pay higher wages or agree to different rules than those provided by the wage scale or rules schedule in effect on Road B. But in July 1902, the Conductors in the West found a way around that problem. The union served uniform demands on all roads in western territory. Eventually, the trainmen joined the movement and, in the face of a strike threat, unions and management reached a compromise which gave both organizations' members a pay hike and concessions on rules.

Union cooperation

From that rather modest start, the concerted-movement idea spread quickly to both East and Southeast. And, within a few more years, regional movements turned into national movements. The first big one: the BLE-BLF&E-BRT-ORC demands, served nationally, for the so-called eight-hour day in 1916.

● **Movement succeeds.** Thanks largely to the intervention of President Woodrow Wilson, the movement was successful. Every move to compromise, mediate or arbitrate the dispute failed, and when the organizations threatened a Labor-Day strike, the President called on Congress for help. Congress responded by passing the Adamson Act, providing that eight hours shall "be deemed a day's work and the measure or standard of a day's work for the purpose of reckoning the compensation for services of all employees . . . engaged in any capacity in the operation of trains."

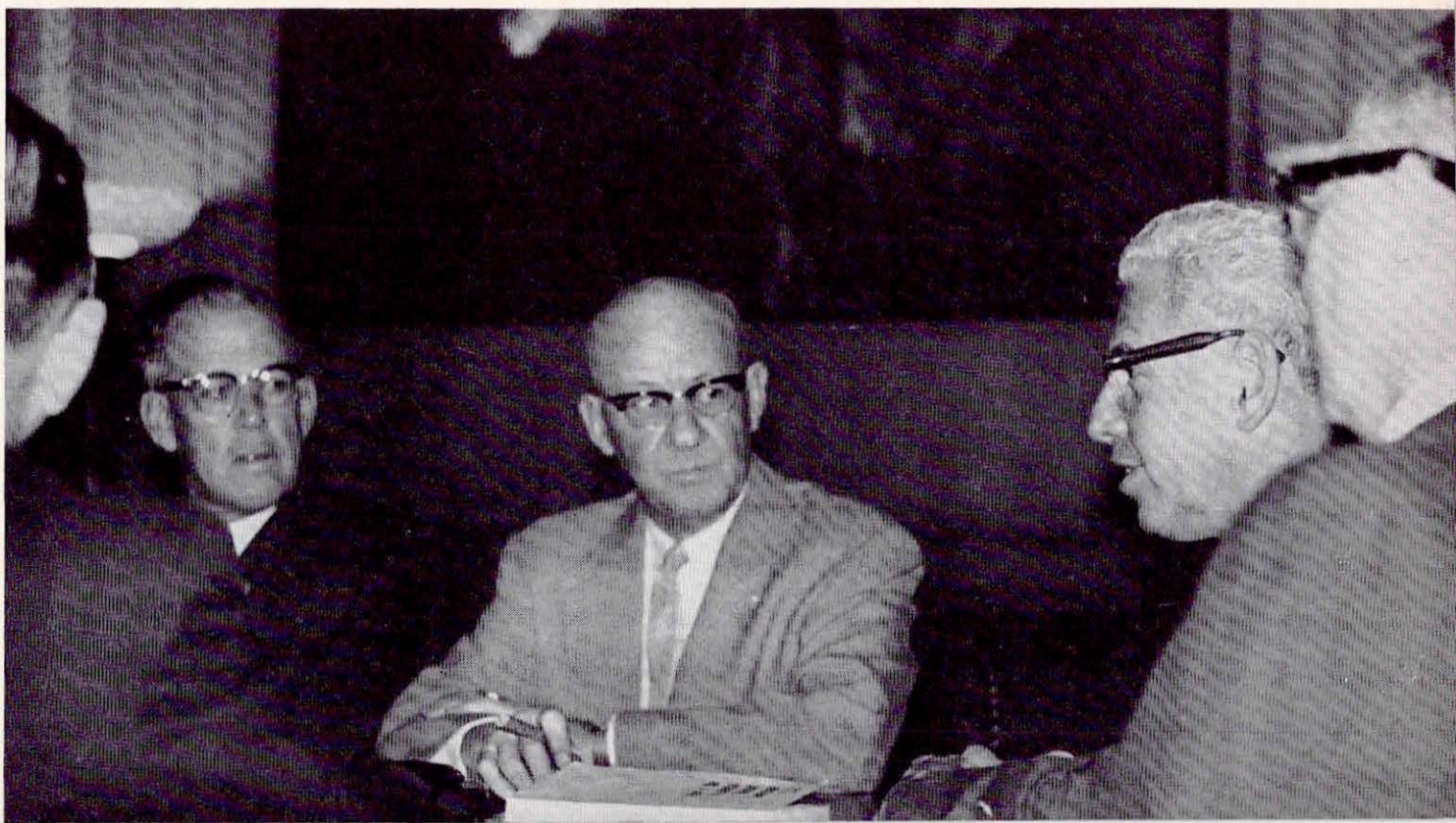
With the Adamson Act in effect, carrier expenses promptly went up by about $61.5 million annually, mostly because of the additional overtime payments which the act required.

● **World War I gains.** Next major gains for the brotherhoods came during the World War I period of government control of railroads. Wage rates went up sharply. Expansion of unionism was encouraged. Adjustment boards were set up to settle disputes over interpretation and application of contract provisions. And, finally, the unions took advantage of government control to press demands for rigid rules covering who performs what work—rules which the carriers contended, then and later, required employment of more men than were actually needed.

After the war, controversy was almost continuous. Provisions of the Transportation Act of 1920 left both management and labor unsatisfied. Serious business declines made wage cuts necessary. Contracting-out of work became a major point of argument between the carriers and the shop-craft unions (and figured in the 1922 shop-craft strike in which more men walked

. . . and as their adversaries.

Collective bargaining has taken the time of top union leaders these past few years as perhaps never before—mainly because of the long controversy over work rules. Here the engine-service chiefs—the BLF&E's H. E. Gilbert (left) and the BLE's Roy E. Davidson are engaged in grim-faced discussion with former Secretary of Labor Goldberg.



off the job than had ever gone out in any previous railroad strike).

• **Legislation and security.** By the mid-1920s, however, the situation quieted down. The next decade was spent largely in pushing for labor legislation and—after the depression hit hard—in pushing job protection to cover railroad consolidations.

Congress passed the Railway Labor Act in 1926 and, eight years later, added amendments which set up the national adjustment boards which the brotherhoods had not been able to obtain in the '26 act. Congress also approved an Emergency Railroad Transportation Act of 1933, a temporary measure aimed at eliminating unnecessary duplications of rail services and facilities. But the '33 act also provided strict employee-protection conditions and, at its expiration, rail labor leaders immediately sought continuation of the job-security provisions in a collective-bargaining agreement. The result: the Washington Job Protection Agreement of 1936.

• **Diesel agreement demanded.** Just a year later came the first in a series of agreements that have produced controversy for the past 15 years—and that constitute the main point at issue in the current rules dispute.

In late 1936, the BLF&E demanded a rule providing for employment of a fireman or helper on all types of power in all classes of service. The resulting agreement, reached through national handling, provided that a fireman-helper would be employed on certain types of locomotives weighing more than 90,000 pounds on drivers and on diesel and other locomotives used on streamlined or main-line through passenger trains. Application of the agreement, it was estimated then, would cost about $500,000 per year. Extension of the firemen-on-diesels principle, the carriers now contend, costs considerably more than $200 million per year.

• **Unions make new gains.** Through World War II, rail unions forged new gains, with the help of an Administration which apparently had no great faith in the recommendations of its own emergency boards. After the war, gains continued (despite a temporary head-knocking when the Engineers and Trainmen collided with President Truman in 1946). Almost continuous bargaining—always with government close at hand or actively participating and with occasional government seizure of the railroads—produced significant advances in both wages and rules.

After 1952, the scene again quieted—until the work-rules controversy erupted in 1959.

Aside from contract gains, rail unions have benefited from an acute recognition of the value of legislative programs, on both the state and federal level.

• **Legislative efforts.** Much of the legislation dealing with safety in transportation got its first push (and much of its continuing pressure) from union legislative representatives. So-called full-crew laws are on the statute books of some 16 states largely because of the unions' power of political persuasion. Merger activity has been slowed somewhat today because of brotherhood pressures in Washington (even though merger-moratorium legislation has failed of passage).

'Safety' issues

Management has sometimes demurred on what the unions consider "safety" legislation. It cannot regard full-crew laws as anything but artificial barriers to the efficiency which technological progress should produce. It vigorously opposes legislation restricting merger (pointing out at the same time that no labor force in the country enjoys protective features like those provided for rail employees in merger situations). And, management struggles against what it regards as inequities in the Railroad Unemployment Insurance Act (including the provision of payments, carrier-financed, to strikers).

• **Teamwork.** Despite these differences, rail management and the brotherhoods have displayed teamwork which has made them a powerful pairing when they're shoulder-to-shoulder in House and Senate, at the state or federal level. The unions gave significant support to the Transportation Act of 1958, and it passed. They fought efforts to put artificial restraints on piggyback—the so-called Hoffa bill—and the restraints weren't applied. Today, the unions could be giving important support to minimum-rate legislation, to major features of President Kennedy's Transportation Message. They aren't—and some observers, viewing brotherhood reaction as a decision growing out of the work-rules dispute, think the organizations will be short-sighted if they take an opposing view in a legislative fight which could shape the industry's future to a large extent (and determine if there will be more or fewer jobs available).

Jobs, however, have become the main worry of union chiefs—an unastonishing situation, in view of the declines which have already hit rail employment. The industry today has about half the number of employees it had 15 years ago—and most of the cuts are traceable to one of two factors: improved operating procedures made possible by investment in modern technology; and losses of traffic to competing forms of transportation.

• **Change resisted.** Union leaders, for the most part, have taken a "status-quo" position. Departures from established positions have been few (and, in the case of BLF&E President H. E. Gilbert's recent proposal on elimination of some firemen, have been regarded as too little, too late). Some management representatives seem to suspect that maintenance of the grand lodge is any brotherhood leader's biggest worry—but, as one officer of the Firemen commented recently, that's "the least of the union's problems. The biggest is still reaching a settlement that the membership will find reasonable and approve."

For one reason or another, rail unions for the last four or five years have found themselves in a defensive

'New Progress . . . Further Statesmanship'

"The life of the Brotherhood of Locomotive Engineers spans a century of unparalleled progress for the nation and the railway industry. In many of our industries, gains for workers in wages and working conditions and a voice in the terms and conditions of their employment followed the progress of rail labor. The railroad industry pioneered the development of one of industrial democracy's basic institutions, collective bargaining, which has yielded progress and change for labor, for management and for labor relations in the industry. From rail labor and management, leadership of courage and vision has emerged throughout the industry's rich history. I am confident that these qualities remain today to shape new progress for the railroads and to add further statesmanship to rail labor relations."

—W. Willard Wirtz, Secretary of Labor

position—novel in their long experience in negotiation. It may be, as one union attorney noted, that the railroads' big "technological" advance has been in the area of public relations. Or it may be that time has caught up to an industry which has been conservative in more ways than just in its work rules. In any event, the past years have seen rail unions—successful in bargaining and in the legislative field—suffer reverses in a third area: impartial boards and the courts.

• **Little success in court.** Unions have had to fight successive challenges to union-shop privileges. They lost, before the U.S. Supreme Court, in the now-celebrated Chicago River & Indiana case and thus lost the power of economic action in "minor" disputes —those submitted to the National Railway Adjustment Board for binding decision. Finally, they found no support in any court for the last-ditch fight to stymie work-rules changes by having carrier moves called illegal under the Railway Labor Act.

Events of the past few years may mean, in effect, that a balance of power has been reached—and, if so, it will be one of the few times in the 100-year history of rail unionism when both sides have had an equal deal, off the top of the deck.

• **Equality?** For roughly the first 50 years, management usually had the edge. For the past 50 years, the brotherhoods have forged ahead and tipped the scales—with the help of Presidents and their advisors—at least as heavily in the other direction. Now, with government's hand as likely to spank as to pat, an approach to equality may be returning to bargaining. Most observers would regard this as a good thing, for both sides—and, possibly, as a good thing for the Railway Labor Act and its provisions (largely ineffective in recent years) for developing settlements in major disputes.

Labor and the law

The alternative to RLA provisions —compulsory arbitration—is distasteful to both sides, to a degree (less so to managements than to unions). Management may well hesitate at the prospect of further government intervention—though, as carrier spokesmen have noted clearly, government already exerts powerful controls over services and prices (so why not costs?). Unions have consistently shied away from the RLA's arbitration provisions—now, probably, recognizing that arbitration is a proposition which draws far more support from the side which has been pushed into a weaker economic position. Collective bargaining under the RLA, coupled with repeated moves to bargain upward from emergency-board reports, has produced generally satisfactory results for rail unions. Arbitration, in contrast, has resulted in awards which have to be accepted—but are usually described in terms like "disappointing."

While both management and the unions are dissatisfied with the way bargaining has worked out under the Act, they're also critical of the Adjustment Board machinery. Unions and their members chafe at long delays in getting cases decided; carriers (and the unions as well) find themselves picking their way carefully through a maze of precedents, some conflicting. Sporadic attempts are made at cleaning up the backlog of cases—but the delays are still lengthy (because, some say, of the number of cases referred to referees).

• **Unions and democracy.** Conflict—past, present and future—notwithstanding rail employees and their organizations have made major contributions to the carriers, to other unions and to the nation as a whole.

Clean unions

Among voluntary organizations in the nation, the rail organizations have, on the whole, maintained their good repute—and usually set a good example to industrial unions, some of which provide less opportunity for expressions of anti-administration opinion than do railroad unions.

Moreover, rail unionism has maintained a hound's-tooth cleanliness—covering both its refusal to deal with so-called subversive influences and its avoidance of unethical practices between leaders and rank-and-file.

• **Relations good.** Management-union relationships, over the years, have also remained good. Monumental battles have raged—but during and after the fight, respect remains on both sides. Warm personal friendships have persisted across the bargaining table, where the talk is sometimes acrimonious. Union sources, for instance, had hard things to say when the carriers formed the National Railway Labor Conference—but, almost unanimously, they agreed that the railroads put a trusted, respected adversary (J. E. Wolfe) at the head of the new group's bargaining team.

And the brotherhoods' impact on the public generally? Well, railroaders have always been considered a breed apart—partly because of the danger of early-day railroad operation and of the heroic deeds which those dangers produced. Railroad men themselves have long looked with sympathy, if not with admiration, at engineers who have run into trouble—Casey Jones, and the engineer who plunged off the rails with "Old 97" and its cars of mail and express, for example. But the public—with a greater appreciation of heroics—has usually adopted the image of the heroic railroad man.

• **The public's view.** Actually, the public hasn't been far off base either. Railroading was a dangerous occupation—but in later years, most of the early dangers have been reduced, if not eliminated (only to be succeeded by certain others, as any engineer who's come through a near-miss at a grade crossing will testify).

More than anyone else, kids adopted railroaders—and the big moment in a boy's day was the moment when the express came flashing by. And the boy waved—and the engineer waved back.

• **Boys and engineers.** There was a time, probably, when a poll would have showed more boys wanted to become locomotive engineers than would have chosen the life of a fireman or a policeman or anything else. And while times have changed, and job requirements and job opportunities and kids' opinions with them, there's still an affinity—a comradeship between the man at the throttle and the kids by the wayside. Many a youngster still grows up with just that one slender contact with a railroad.

The kids still wave—and the engineers still wave back.

Robert E. Hallberg
North American Car

Gene R. Schaefer
WABCO

Alexander D. Bruce
Vapor

Arthur J. Loose
Vapor

Laurance H. Gillick
Vapor

Louis T. Freed
GRS

PEOPLE IN THE NEWS

AMERICAN REFRIGERATOR TRANSIT CO.—**Nate C. Coleman,** western traffic manager, Denver, Colo., retired May 1, after 33 years of service. Because of a printer's error in Railway Age, April 29, p. 51, Mr. Coleman was erroneously described as "the late Nate C. Coleman."

ARKANSAS & LOUISIANA MISSOURI.—**Kenneth Hensarling** appointed general agent, Lake Charles, La., succeeding **R. C. Blacketer,** who resigned to manage his business interests in Houston. Mr. Hensarling will serve South Louisiana and the Texas Gulf area.

DEFENSE TRAFFIC MANAGEMENT SERVICE.—**Maj. Gen. Rush B. Lincoln, Jr.,** USA, appointed commander, DTMS, succeeding **Maj. Gen. I. Sewell Morris,** who retired April 30 (RA, April 29, p. 69). Gen. Lincoln will assume command in June. Until that time, DTMS will be under the command of **Col. Clarence J. Lang.** Gen. Morris has joined the AAR as assistant vice president on the staff of **Philip A. Hollar.**

DELAWARE & HUDSON.—**Richard H. George** appointed freight traffic manager, Albany, N.Y., effective May 1, succeeding **W. R. St. John,** who retires June 1.

DETROIT & TOLEDO SHORE LINE.—**B. T. Cool,** superintendent, Toledo, Ohio, appointed assistant to general manager there. **R. A. Altmeier,** trainmaster, succeeds Mr. Cool. **R. D. Erwin** appointed labor relations officer, Detroit, Mich.

ERIE-LACKAWANNA.—**R. A. Carroll** appointed assistant director of labor relations, Cleveland. **F. E. Navin,** superintendent, Marion division, Huntington, Ind., transferred to the Mahoning division, Youngstown, Ohio, succeeding **E. J. Robisch,** appointed superintendent—system assignments, Cleveland. **Wilbur J. Betz,** superintendent, Kent division, Marion, Ohio, appointed superintendent Kent-Marion division, Marion.

Warren G. Barber, traffic assistant, research department, appointed assistant to director of research, Cleveland.

Hubert A. Kelley appointed communications supervisor, Allegany-Bradford, Meadville and B&SW division, Salamanca, N.Y., succeeding **Charles R. Fralick,** who retired April 30, because of ill health.

J. P. Morrissey, division engineer, Kent division, Marion, named division engineer of the consolidated Kent-Marion division at Marion. Abolished positions of division engineer, assistant division engineer, supervisor communications and signals and communications supervisor at Huntington, Ind. **Ronald H. Jordan** named division engineer—special duties, office of engineer—maintenance of way. **William F. Caden** appointed assistant supervisor communications and signals at Huntington. **Roger H. Harlow** named communications supervisor, Marion. Abolished position of resident engineer, Huntington. **Charles J. Colman** appointed resident engineer, Marion. **Edward K. Herling** named resident engineer, Salamanca, N.Y.

GREAT NORTHERN.—**Leslie W. Nelson** named general agent, Des Moines, Iowa, succeeding **Martin A. Williams,** retired.

KANSAS CITY SOUTHERN.—**R. E. Simmons** has been named general storekeeper, Shreveport, La.

NEW YORK CENTRAL.—**Joseph D. Gunther,** assistant vice president—freight sales and service, Detroit, Mich., appointed to the new position of director of coal for the system, at Chicago. **George M. Casady,** director of coordinated merchandise operations, New York, succeeds Mr. Gunther at Detroit.

William F. Kirk, assistant vice president—staff, marketing department, New York, appointed to the new post of assistant vice president, Flexi-Van services.

NEW YORK CITY TRANSIT AUTHORITY.—**Walter J. Fulton,** superintendent of equipment, Lake Region, **Pennsylvania,** Cleveland, appointed assistant general superintendent in charge of the Transit Authority's cars and shops department.

TRANSPORTATION ASSOCIATION OF AMERICA.—On May 1, the New York office of TAA moved to larger quarters at Suite 2232, Pan Am Building, 200 Park Avenue. **Mrs. Maude Lindholm** is New York Regional Manager. **A. G. Anderson,** who retired May 1 as general traffic manager of Mobil Oil Co., will devote some time to TAA membership activities in the New York area.

Supply Trade

Edgar C. Corry has been elected executive vice president, **North American Car Corp. Robert E. Hallberg** elected vice president and general manager of the Railroad Car Division. Mr. Corry, formerly vice president, secretary and general counsel, will continue as secretary and general counsel. Mr. Hallberg was formerly vice president in charge of sales.

The former Mass Transit Services of the **Westinghouse Air Brake Co.** have been consolidated into the WABCO Mass Transit Center. **Gene R. Schaefer,** formerly product manager—Mass Transit for the **Union Switch & Signal Division** of the company, has been named director of the Center.

Alexander D. Bruce, president, **Vapor Corp.,** has been elected chairman of the board and chief executive officer. **Arthur J. Loose,** executive vice president, named president. **Laurance H. Gillick,** vice president, appointed vice chairman of the board and will remain in charge of sales and marketing.

Louis T. Freed, general sales manager—United States and Canadian sales, **General Railway Signal Co.,** has been appointed vice president—sales, Rochester, N.Y.

Floyd H. Albert has been named parts sales representative, Southwestern Region, **Electro-Motive Division, General Motors.**

The Prime Manufacturing Co., Milwaukee, Wis., has appointed the following sales representatives: **Bowman Supply Co.,** Cleveland; **John P. Chadwick,** Alexandria, Va.; **C. F. Reedy,** St. Augustine, Fla.

Rodney A. Harris has been named manager of services, **Railway Progress Institute.** He was formerly member relations director for the Midwest Division of the **National Association of Manufacturers.**

Dearborn Chemical Co. has appointed **John J. Bock** sales representative in Arizona. His headquarters will be at Phoenix.

George G. McManis, Eastern rail and container sales representative, **Trailmobile division of Pullman, Inc.,** New York, has been promoted to the newly created position of manager, National Fleet Sales department, Cincinnati, Ohio.

Ken Blessing has joined **L. B. Foster Co.** as a sales engineer at Chicago.

OBITUARY

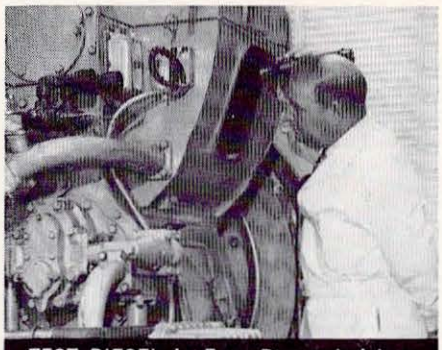
Robert E. Coughlan, 71, retired chief metallurgist and engineer of tests, **Chicago & North Western,** died April 21 at Largo, Fla.

L. C. Jorgensen, 85, who retired in 1956 as general traffic manager, **Green Bay & Western,** Green Bay, Wis., died April 22 after a brief illness. He was associated with the GB&W for 57 years.

Henry Kamp, 86, architect for the **City of New York,** who retired in 1946, died April 30 in Freeport, L.I., N.Y. Mr. Kamp supervised final construction of subway stations, yards and shops of the Independent Subway System.

Timothy G. Sughrue, 74, who retired in 1955 as president, **Boston & Maine,** died April 29 at Salem, Mass., hospital, after a brief illness.

ESSO RESEARCH works wonders with oil . . .



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IT PAYS TO DO BUSINESS WITH HUMBLE . . . AMERICA'S LEADING ENERGY COMPANY

Esso

Huge Pipes Replace Old Arches

C&O has installed two Multi-Plate units in the twin barrels of a 53-year-old masonry bridge.

The Chesapeake & Ohio had ample reason last year to do something right away about the twin-arch masonry bridge that carries its double-track line over Twelve Mile creek, which flows into the Ohio River about 20 miles upriver from Covington, Ky. The bridge, built in 1910, was being undercut and had some piling exposed under the arch supports. But the need for immediate corrective action came about because of the construction of Markland dam, one of several being built in the Ohio River, which would raise the pool level six feet at Twelve Mile creek.

Each arch in the old structure was 27 feet wide and measured about 39 feet from flow line to crown. The barrels of the arches were 53 feet long. The C&O elected to replace this structure with twin corrugated steel, field-bolted Armco Multi-Plate culverts installed inside the arches. These pipe culverts, it was reasoned, would not only provide an adequate waterway opening, but could be erected in the clear and threaded into each of the arches.

● **Pipes are 128 feet long.** Each pipe was designed by the compression-ring method. This enabled a structure 24 feet in diameter and of No. 1 gauge metal to be used under the railroad. The design called for axis dimensions of 25½ feet vertically and 23 feet 1 inch horizontally, the design shape to be maintained during construction by horizontal cables. Each pipe barrel was to be 128 feet long, plus beveled ends to permit construction of an embankment. This resulted in a total pipe length of 184 feet, at the ends of which concrete headwalls of the partial type were to be constructed.

Work was started in the spring of 1962. The first step was to place a diversion pipe through one of the arches to handle the normal flow of Twelve Mile creek. This was a 48-inch corrugated-metal pipe placed with its flow line 8.0 feet below the design flow line of the new pipes. The diversion-pipe flow line was 55 feet below the track subgrade, and the pipe was made 220 feet long to reach beyond the toe of the proposed embankment and the new culvert headwalls.

After installation of the diversion pipe, the bottoms of the arches were backfilled with bank-run granular material containing a fairly high percentage of clay to a height of about one foot below the proposed normal pool level. Over this a layer of sand, two feet thick, was placed to serve as a bedding for the new pipes. However, in July a flash flood in the creek washed out all the backfill material.

● **The plans are changed.** To preclude further work setbacks by flash floods, it was decided to work on one pipe at a time and to keep the other opening available for excess drainage. Heavy-duty sheet piling was driven to effect a cofferdam around the construction area of one pipe, and backfill material was again placed in it.

A light track was laid on the sand bed within the arch and extended out on one end. This was comprised of light-section rails placed at a gauge of about five feet two inches and supported on wood ties laid seven feet apart. The rails were lubricated with graphite.

The barrel portion of the first pipe was then erected over the track on the outside of the arch. When it came time to move the pipe section into the arch, two rails about 10 feet long were bolted to the longitudinal seams near the midpoint of the pipe section. Two one-and-one-half-inch cables were attached to each of these rails and connected to a three-way block and tackle. A crane was used to exert pull on the cables, causing the pipe to move into the arch, after which the cables were detached, the spike heads cut off and the track rails removed. The track ties were left in place.

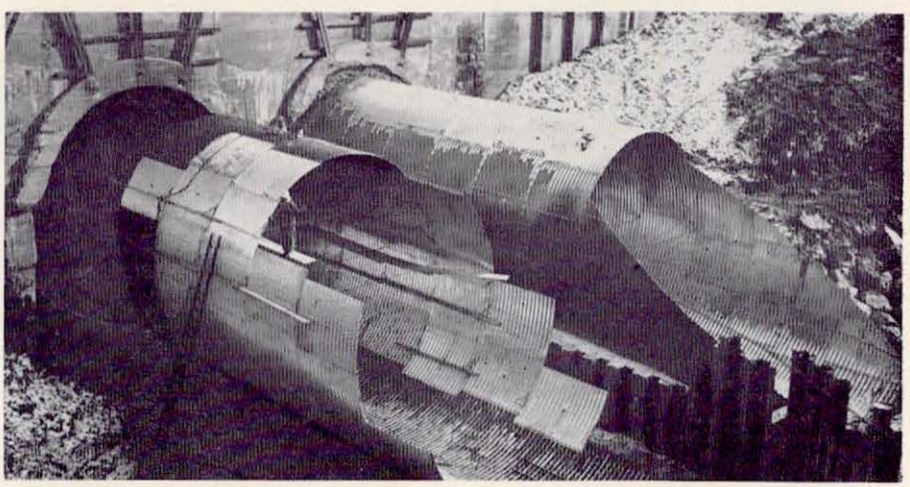
The extensions and beveled ends of the pipe were erected in the usual manner. Then the entire structure, with the exception of the exterior of the pipe within the arch, was coated with Trumbell No. 5 coating. Concrete headwalls were constructed and riprap was placed in front of the walls.

● **Filling the voids.** The void between the exterior of the pipe and the masonry-arch walls was then filled with concrete and grout. This was accomplished by first building a plug at each end of the arch with concrete blocks.

While these plugs were being built, concrete was deposited in the void. There was sufficient room within the lower portion of the void for men to work the concrete back into the midpoint of the arch. Because of hydrostatic pressure, pours were limited to approximately five feet in height per day. The final three or four feet were filled with grout from a hopper supported six feet above the top of the void. To give added support to the end plugs while the work was being done, earth fill was piled up on the outside of the arch and against the plugs to counteract the pressure.

● **High water slows work.** While this work was progressing, numerous high-water stages on the Ohio River caused work delays. When conditions again became favorable, the cofferdam was removed from around the first pipe and redriven around the second-pipe-construction area. The first pipe then handled the normal flow of the creek. The second pipe was then erected and installed, in general following the same work procedure as for the first one.

Work was completed in February 1963. The pipe was erected and placed by railroad forces. Earth work and placing of the riprap and concrete headwalls were done under contract by R. C. Durr Co., Walton, Ky.



CULVERTS were installed one at a time so the other opening would be available to carry excess drainage. Pipe in foreground is being assembled on track with graphite-lubricated rails on which it will be pulled into the arch.

Mechanical Functions Require New Methods

Mechanical department operations must be based on modern yardsticks, with such things as cost controls, market analysis and computers as part of the program, says the NYC's J. H. Heron.

In a rapidly changing railroad situation, the mechanical department must also change, adopting new ideas and techniques and utilizing up-to-date management methods.

How these changes affect today's mechanical department functions was the subject of a recent talk before the New England Railroad Club by J. H. Heron, assistant vice president-equipment, New York Central. "We must be equipment-oriented, not just repair-oriented" Mr. Heron told the meeting. An abstract of Mr. Heron's discussion of the major mechanical department functions follows:

We know the importance of well-maintained serviceable locomotives but it is equally important that you know:

- You have an adequate number of locomotives but not too many.
- The economic life of your fleet.
- The obsolescence factor and the impact upon your operation.
- Availability and utilization of the fleet.
- The trend line of your average annual maintenance costs.
- The financial effects of an adequate replacement plan.

Too many units per train, or too many in service, means extra maintenance dollars. Poor servicing and improperly located facilities cost locomotive time and ultimately result in the need for more units. More units than necessary, even though stored, cost the railroad equipment accounts money in the form of depreciation. Too few units mean drag tonnage and, in today's market, you can't be competitive and drag high revenue freight.

The economic life of the fleet is generally acknowledged to be reached when the total cost of locomotive maintenance, including amortization of the investment, reaches its lowest yearly cost and where additional or fewer years of service will result in increasing the annual operating cost.

Economic changes, changes in physical requirements, improvements in equipment and other factors may well indicate replacement of locomotives before their economic life. It is in this category that you must, in conjunction with the Transportation Department, decide what extra horsepower per unit may mean to your railroad.

The availability and utilization of the fleet offers a measure of the performance of the terminal mechanical people and the transportation people.

The trend line of your average annual maintenance costs will reflect poor maintenance procedures, such as your inability to shop locomotives at the optimum time.

An adequate replacement plan must reflect maintenance savings, scrap salvage, fuel savings, crews' wage savings, the rental (if any), interest on the payments and increased depreciation. The interest on the payments and increased depreciation can be supplied by your respective Accounting Departments, and the impact on cash and assets can be forecast in advance for a 10-year period, or any other period selected. Armed with this information, you are then in a position to justify your request for new power.

Car-Program Requisites

Basic historical data, evaluation of deferred maintenance in the car fleet, and true costs reflecting true overheads are the first three requisites in determining a car program. We must consider the economic life and obsolescence of the units and also evaluate the customer's acceptance. This evaluation can probably best be obtained from our market research group.

The company's money is wasted by repairing cars for ladings that are unprofitable to haul, or by repairing cars for which there are no particular customer requirements.

Today's high cost of specially equipped cars dictates that these factors all be carefully weighed and evaluated before purchasing or rebuilding programs are undertaken.

Our major organization change on the New York Central has been the establishment of a new function in the Equipment Department. Our director of systems and controls is charged with coordinating joint action of the equipment and marketing groups on special equipment studies and to act as the motivating force to advance the equipment planning function.

Further, he has staff responsibility for developing and installing improved processes, operating practices, systems, and performance controls for designing, building, servicing, repairing and retiring of our rolling stock. In furtherance of these duties, he is responsible for cost study and capital expenditure project development and evaluation.

Today's engineering may well require fewer engineers and draftsmen than formerly. Our suppliers in the locomotive and car industries have greatly augmented their research departments and have shown a willingness to explore new ideas and innovations at the request of the various railroads. However, our engineers must use profit-oriented thinking.

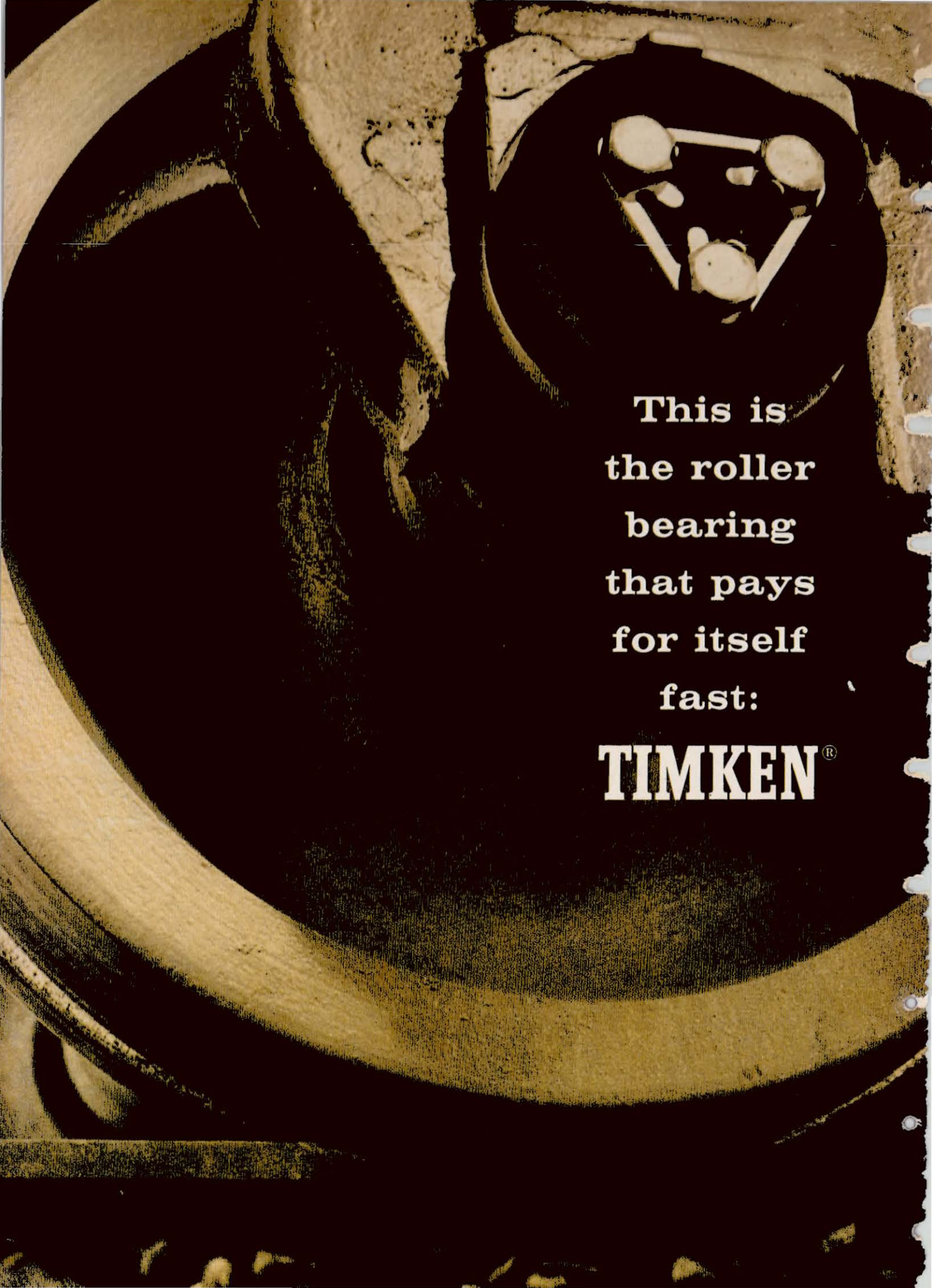
One of the newer activities of the Mechanical Department is computer-scheduled locomotive maintenance and distribution now being programmed on machines by the New York Central and which will be in operation by early spring of 1964.

The distribution of locomotives will be, we hope, automatic, based on such things as necessary horsepower for speed of a particular symbol train, the tonnage and the terrain. The computer will know the m-u limitations of the locomotives, which ones must lead, which ones must go to their respective terminals for shopping, which ones are cheaper to run, which are least likely to fail, and the requirements for motive power in the reverse direction as early as possible. The machine will select a preferred consist with alternate consists, if any are available.

The machine will be fed the arrival and departure times continually by all main points on the system. Requirements for other than standard symbol trains will be requested by outside points as far in advance as possible and processed immediately.

Eventually, automatic identification readouts will report locomotives to the machine bureau and advise as to whether they are shut down or not. The computer will schedule locomotives to the shop on the basis of usage and failure of component parts.

We will get daily output messages. To conserve the reading and digesting of a lot of paper, where possible, the reports will be of the exception type.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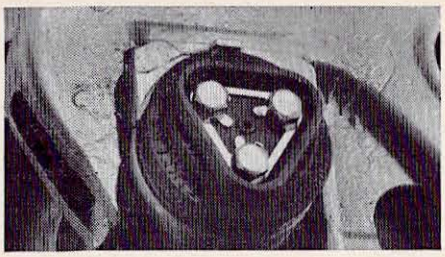

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RAILROADING AFTER HOURS WITH JIM LYNE

LYNE

DISTINCTIVE NAMES FOR PLACES—I have a polite protest from my professorial friend at the University of Western Ontario, Dick Overton (the Burlington's historian), about my recent reference to the name of his birthplace—Montclair, N.J. I suggested that its old name, Cranetown—from the name of a prominent local family—was more appropriate. Dick contends that there is a "mount" involved (to me it's more like a hill); and that the air is occasionally "clair." I don't doubt it—but there are thousands of locations to which such a name could just as aptly apply—in the same way that Bellevue, or Pleasant Valley, or Oakville are unimaginative and commonplace.

I prefer a name, whether it's pretty or not (for either a town or a person) that is distinctive. Years ago I met a fellow named Stewart who grew a full beard and added an X to his name, just because he believed that his name wasn't distinctive enough.

There's a station on the MoPac, along the Missouri River, called Malta Bend—which commemorates a steamboat that was wrecked there at a turn in the river, possibly a century ago. When there's a spot called Gallows Hill (or some equally homely and appropriate label) some prettyfier always wants to call it Mountain View or something equally polite.

Any suggestion as to station (e.g., town) names that are particularly colorful and appropriate?

THEY FOLLOW THE CROWD—I heard an intelligent discussion a week or so ago about the proposal for super-high-speed railroad service between Boston-New York-Washington; and one of the participants wanted to know how much the ratio of rail traffic to air would shift, with such fast surface transportation.

My own belief is that the volume of passenger traffic by any route is governed less by its relative price, speed, convenience and safety—than by the degree to which using it becomes a matter of prestige in the minds of the traveling public. I recall the days when the "Twentieth Century Limited" used to run in as many as six sections. It was a mighty good train all right, but hardly six times as good as all other trains which operated in only one section.

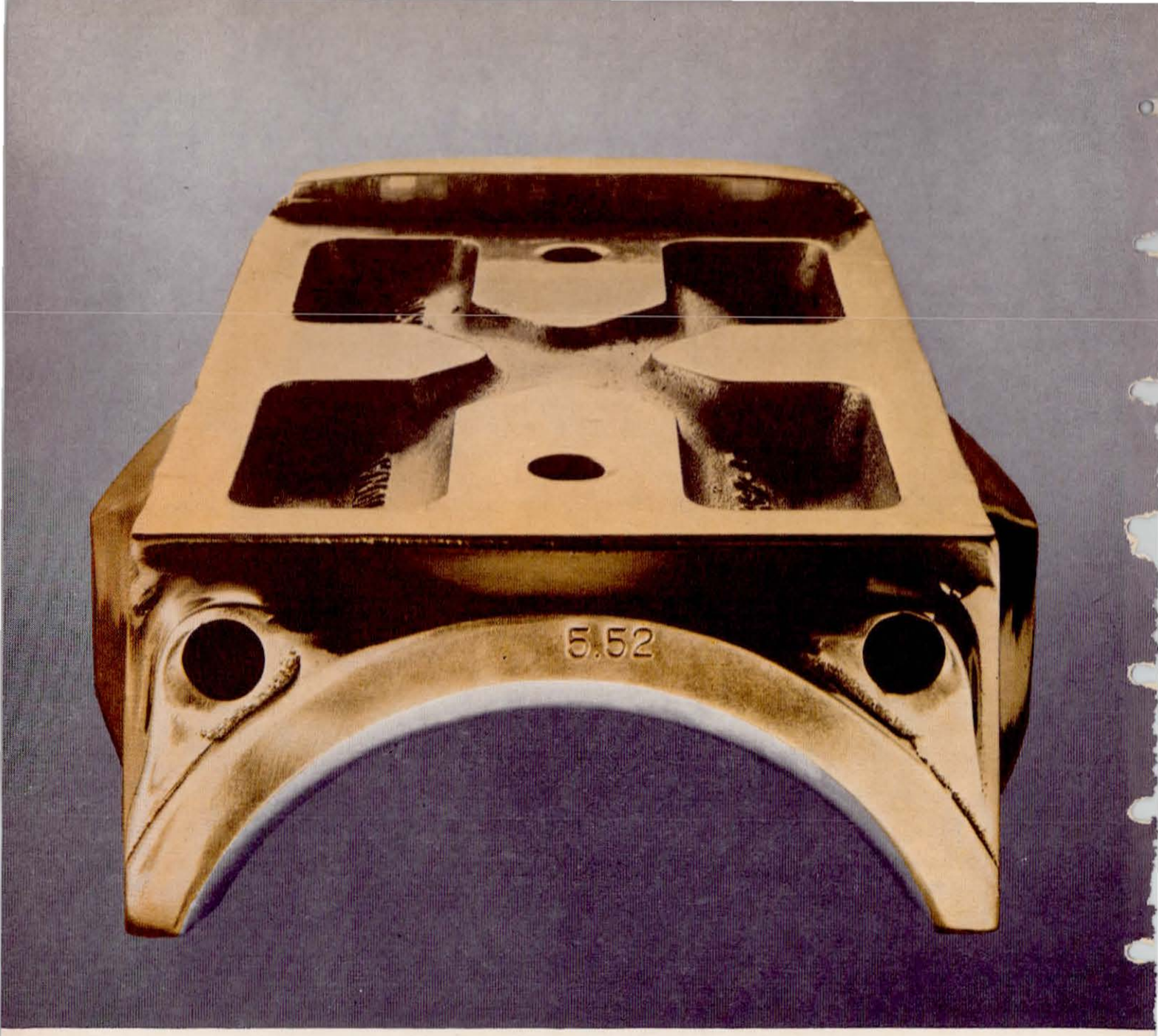
The airlines are working this psychological gimmick to a fare-thee-well, what with their preferential treatment of big-name passengers and similar tricks. You tell me the promotional devices to be used to attract prestige to using super-speed railroad service, and maybe I'll then try to guess its probable success.

RETIREMENT OCCUPATION—I was reading the other day about an elderly civil engineer who has devoted time he otherwise might have spent in pleasant retirement—to carrying on a one-man campaign for a Champlain-St. Lawrence Seaway. This project, of course, is a pure boondoggle of the most malignant type—but the idea of a retired man occupying himself as an advocate for a cause has its merits. How about retired railroaders looking into the question of highway finance in their respective states, and endeavoring to put it on a rational basis?

'THEY PUT IN A GOOD CASE'—I have had the opportunity recently to speak to a number of transportation economists about the victories the Southern has won before Division 2 of the ICC and the Supreme Court, with its reduced rates on grain. All of them agree with my suspicion that the victories are probably ascribable to the depth and skill of the presentation of its case by the railway. I find a similar opinion prevalent regarding the Supreme Court decision in the Sea-Land case—i.e., that the railroads did a highly competent job in presenting their case.

It is probable that getting deep and sound thinking on intricate economic issues, presented as evidence and argument in litigation, is a mighty telling educational device.

Regulators and judges and lawyers are more or less under pressure to follow the arguments in litigation—much more so, probably, than they are impelled to read weighty treatises on economics. In any event, it's easier to get these complex issues understood by judges than by the lay public.



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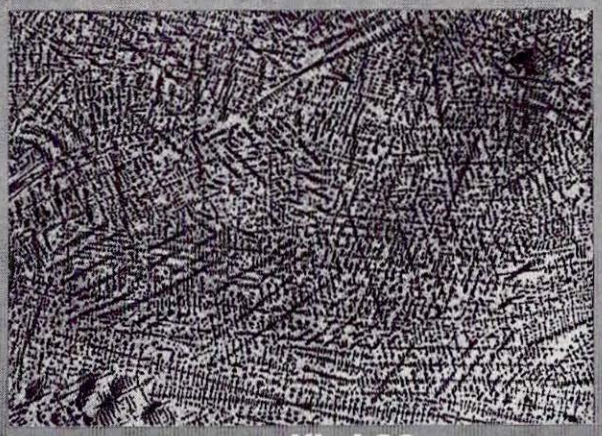

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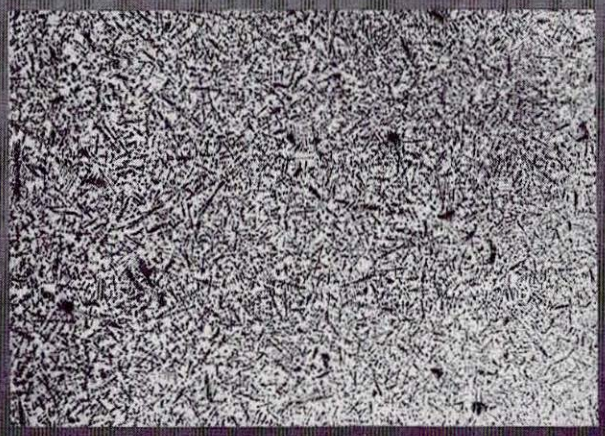

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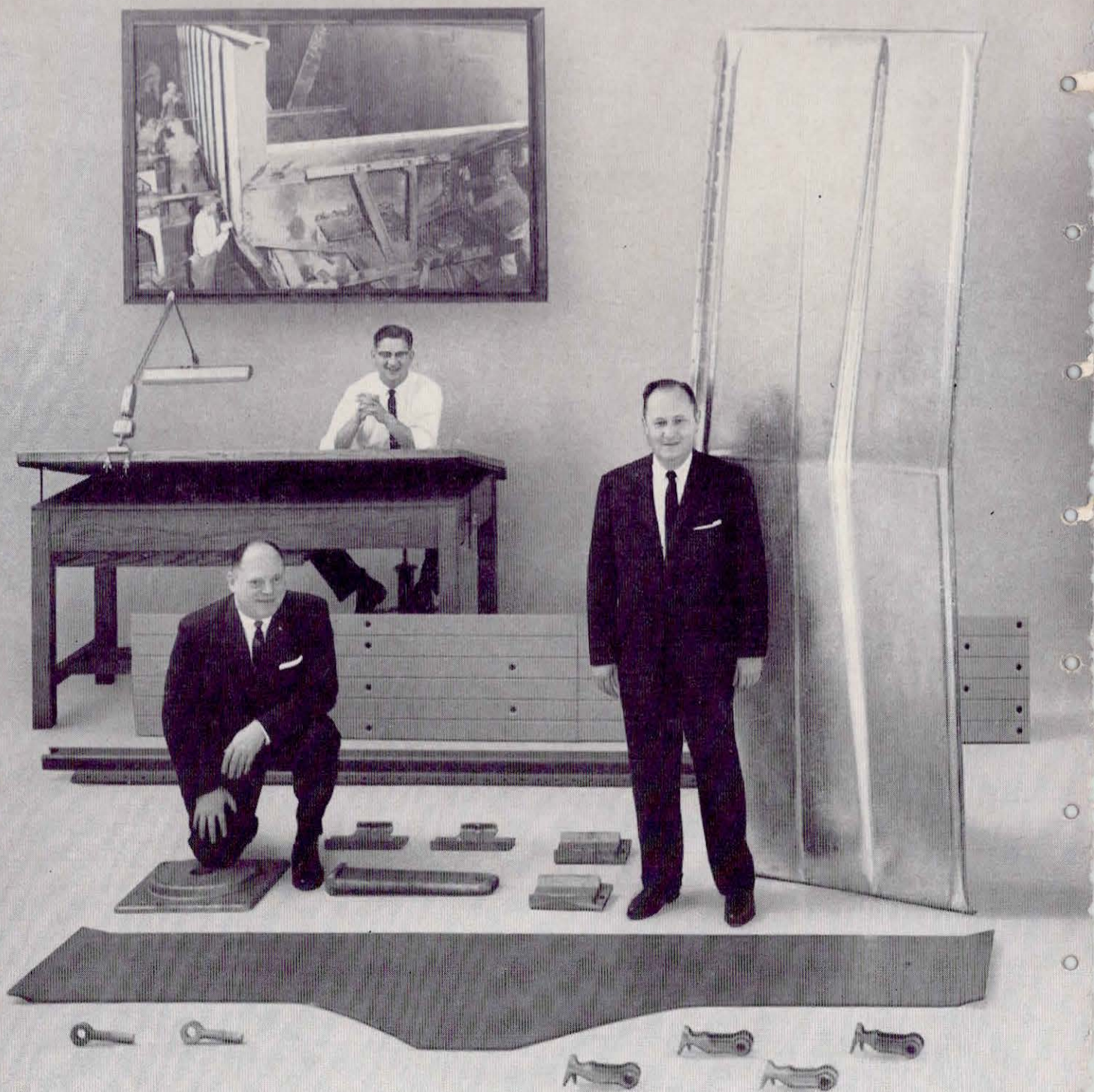

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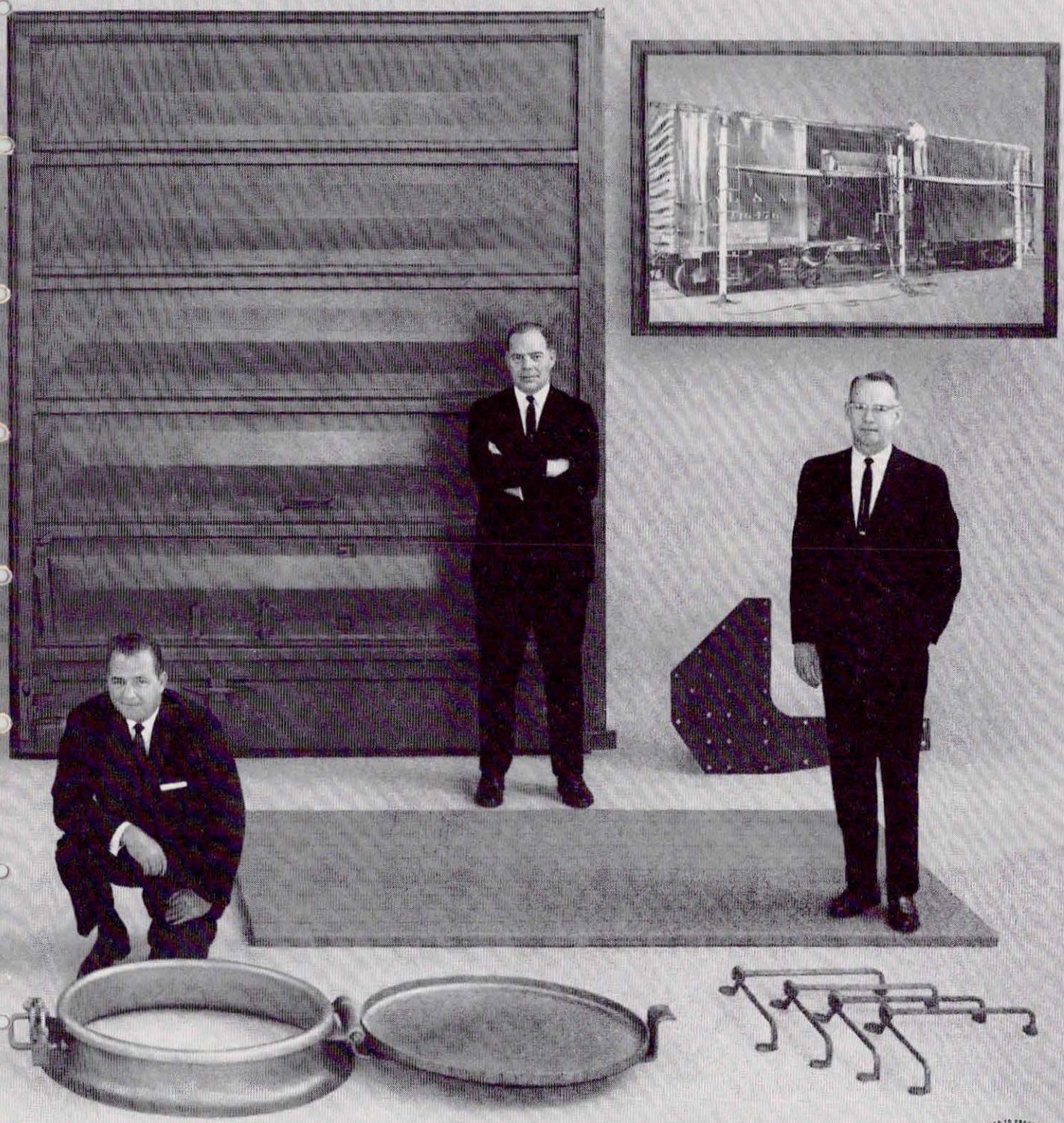

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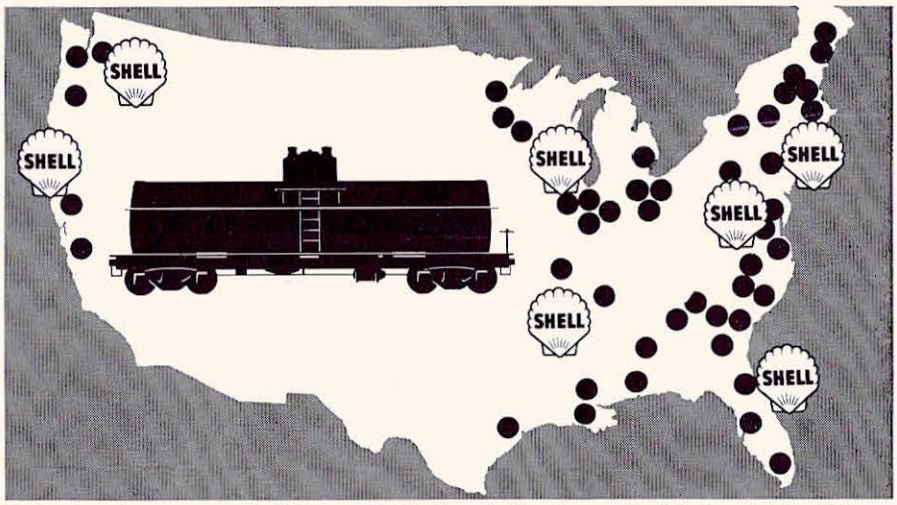

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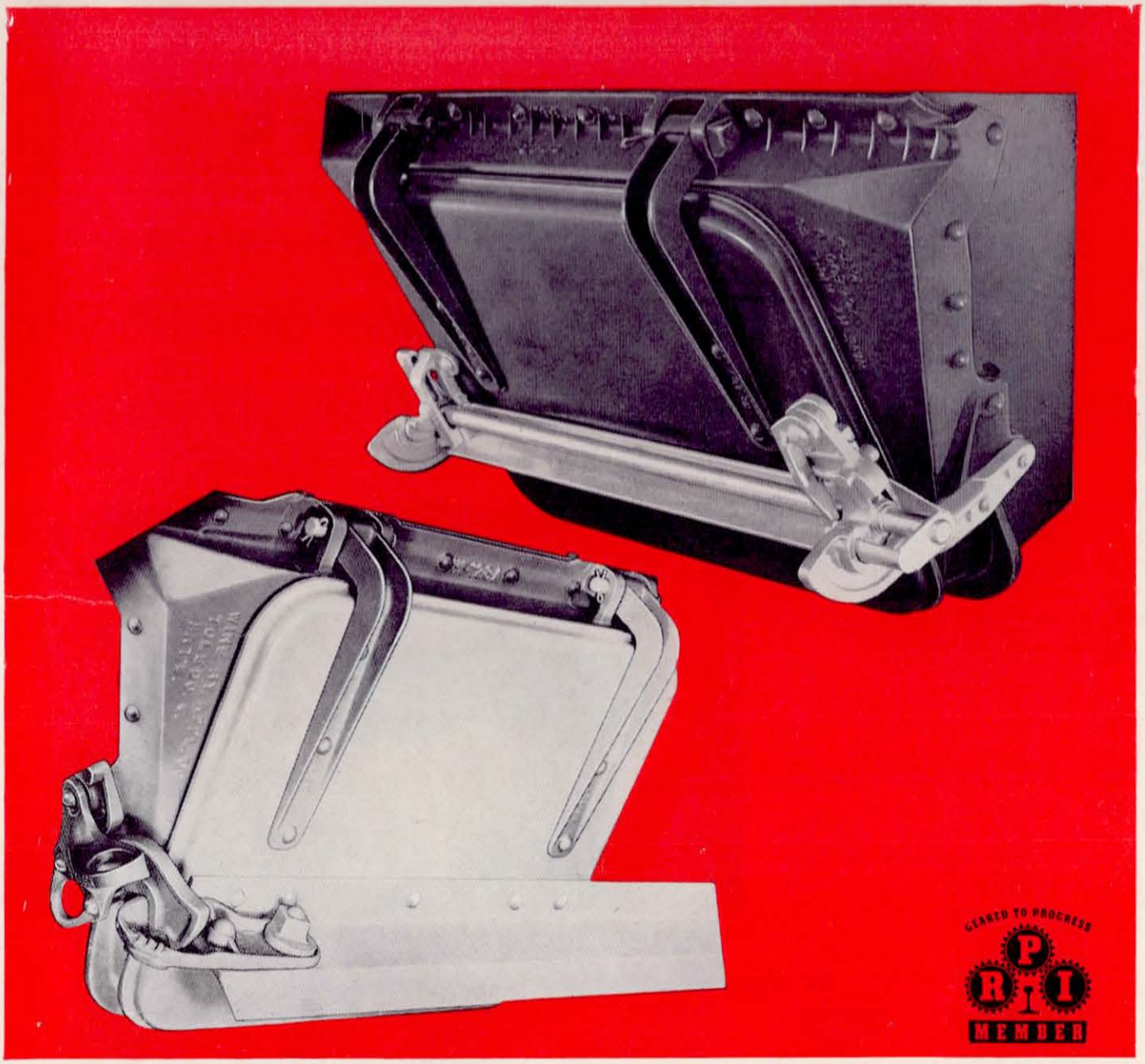

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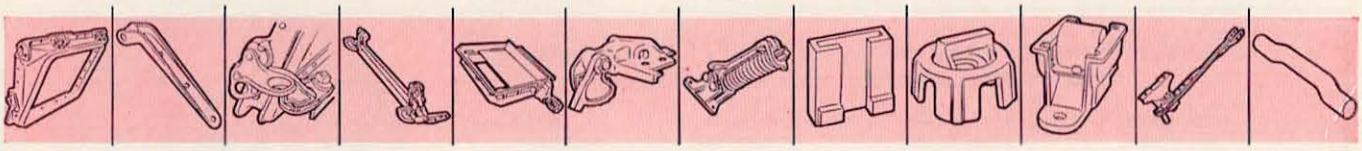

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● **Legislative roadblock.** If the powerful House Rules Committee will act and let the House vote on the Administration's urban mass transportation bill, it will pass, the chief sponsor of the bill said last week.

Sen. Harrison A. Williams (D.-N.J.), pointed to the Rules Committee as the biggest stumbling block to passage of the legislation. He said that in the Rules Committee the Administration has "only the slimmest of margins for its measures."

Chairman of the Committee, Rep. Howard Smith (D.-Va.), "has the power to postpone consideration of any measure almost indefinitely, unless extraordinary pressures are brought to bear," he declared.

The mass transportation bill has already passed the Senate and the House Banking Committee. It now awaits House Rules Committee clearance.

● **Pacific Coast project.** Construction of San Francisco's proposed 75-mile rapid transit system (RA, Feb. 18, 1963, p. 16) isn't expected to get under way until mid-1964, according to Adrien J. Falk, president of the San Francisco Bay Area Rapid Transit District. The original timetable called for work to begin in January 1964, but the suit filed by a group of dissident voters challenging the $792-million bond issue is still pending, tying up the entire project. BARTD officials say the delay will cost millions in higher construction costs because of inflationary trends.

● **Montreal extending subway.** Tunneling on Montreal's $132 million 21-mile subway system (RA, April 1, 1963, p. 14) has passed the two-mile mark and is well-on schedule for its 1966 opening date. It has been announced that the north-south line will be extended three miles southward under the St. Lawrence River to the south shore. The estimated cost would be $13 million. The city has called for tenders on the international market for the manufacture of 279 rubber-tired subway cars for the Metro system.

● **Detroit monorail hassle.** The city's proposal to allocate $50,000 in the city budget toward a two-year transportation study (part of the total cost of $900,000, that would be largely financed by federal funds) has been attacked in the City Council. Councilman James H. Brickley said no funds should be allocated to plan a monorail system while the Grand Trunk Western continues to offer commuter service between the city and the northern suburban communities.

"If we are going to have any kind of rapid transit rail system to complement the buses, let's make use of what already exists without possibly spending millions of dollars to develop a new one," he said. The Grand Trunk, he declared, is "begging" for customers.

CAKE VS BREAD

● **Transit in Cleveland.** In Railway Age of Feb. 18, p. 20, Cleveland Transit's "Rapid" service was reported as carrying 8,085,833 passengers in 1955 and 18,329,372 in 1960. Albert S. Porter, Cuyahoga county engineer, points out that 1955 was not a full year of transit operation—hence that comparing subsequent years' traffic with 1955's gives a misleading figure of traffic increase.

The "Rapid," Mr. Porter points out, was completed to West 143 Street in November 1958, and carried 17,822,146 passengers in 1959. It carried 17,355,588 riders in 1962 (which figures out to a reduction of about 2½%). In 1960, passengers carried totaled 18,329,372—a sum which has since declined a little more than 5%. Mr. Porter goes on to state that:

"The Shaker Heights Rapid Transit is also declining in use year by year, and in 1962 carried 5,777,000 riders. In 1948, it carried 7,436,000 riders."

The figures cited by Mr. Porter indicate that some of the comparisons in our report on Cleveland transit operations in our Feb. 18 issue were misleading. We are obliged to him for enabling us to correct the record.

Improvements in transit service usually occur on an off-again, on-again basis—whereas the gigantic highway program of the federal government proceeds continuously. That is to say, the Cleveland transit system is competing today against more elaborate highway facilities than it did in either 1960, 1961 or 1962.

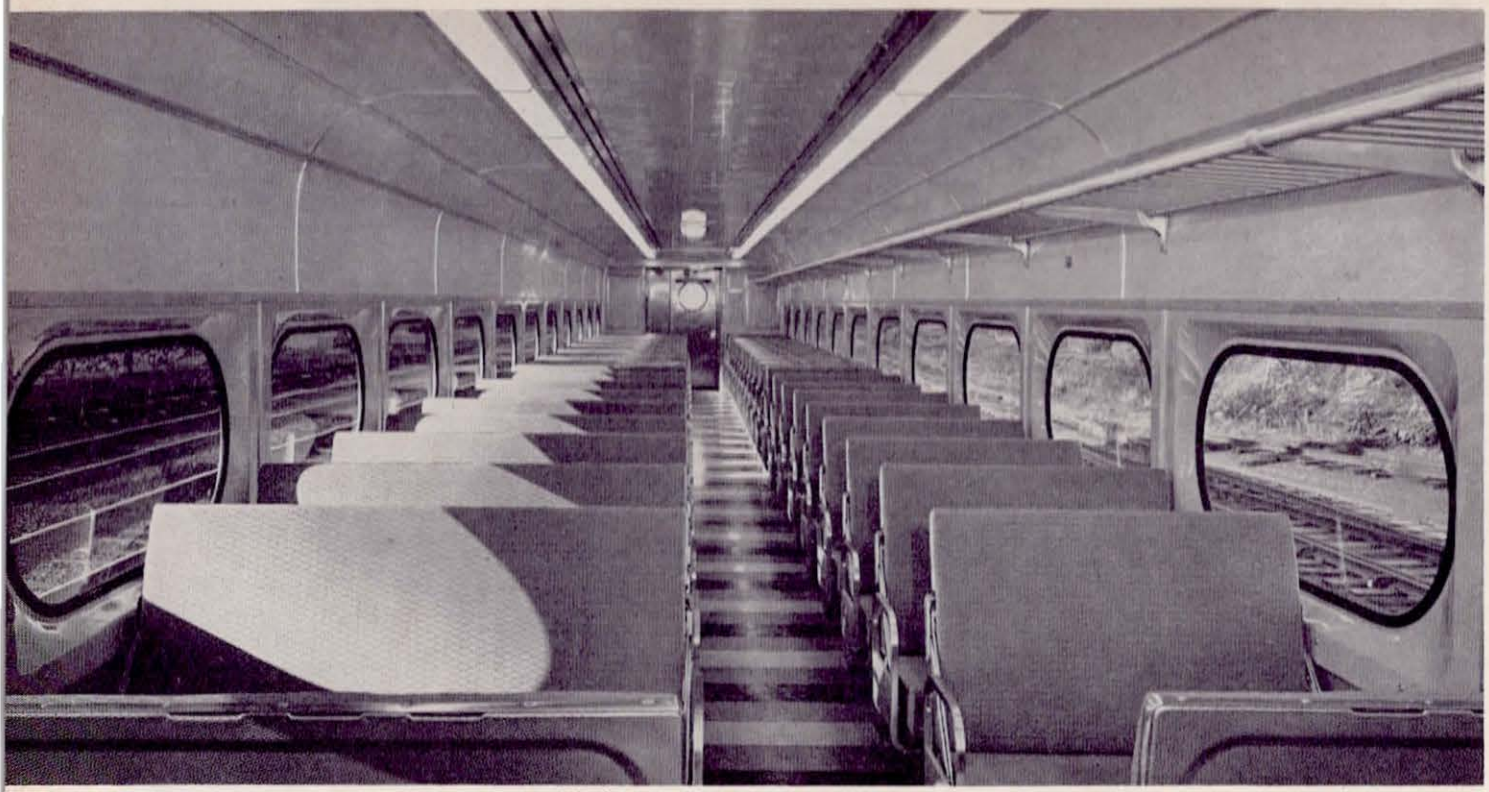
If people in the Cleveland area who commute by automobile were paying the full cost of the service (as it would be computed, for instance, by such independent economists as Professor William Vickrey), quite likely the use of the transit facilities would be more intense than it is. If bread is sold at a price which approximates full cost, and cake is priced considerably below cost, the cake business can be expected to flourish, as compared to bread.

Mr. Porter says: "I challenge you to name one rapid transit that is really taking automobiles off the streets." Philadelphia recently had some experience in this area, in the form of a transit strike. We would suppose there are at least some Philadelphians who would be willing to testify that there were a few more automobiles on the streets during the strike than after it ended.

Mr. Porter, quite evidently, suspects us of bias in favor of rail transit over commuting by automobile. We entertain parallel suspicions as to his prejudice in favor of highway movement. But such problems as these can be solved only on a basis of facts, which this paper will never knowingly mis-state. It is unfortunate that so few facts are available as to highway transportation, compared to the "goldfish bowl" position of all transportation by rail.

In a city the size of Cleveland, we are inclined to suspect that *total economic costs* of commuting by rail transit should be less than commuting by highway, and we have seen no figures which would suggest a contrary conclusion.

E. F. D.



INTERIORS of cars are designed to minimize cleaning and maintenance; no paint is used.

PRR, Reading to Get More City-Aid Cars

Delivery of 55 multiple-unit commuter coaches, bought by the city of Philadelphia and leased to the railroads, is scheduled to begin later this month and to be completed by autumn.

Philadelphia's program to improve suburban and urban transportation will move another step forward this month when the first of 55 new electric multiple-unit commuter cars are scheduled to go into service. Thirty-eight of the cars will be assigned to the Pennsylvania and 17 cars will operate on Reading suburban routes. Deliveries are to be completed by autumn.

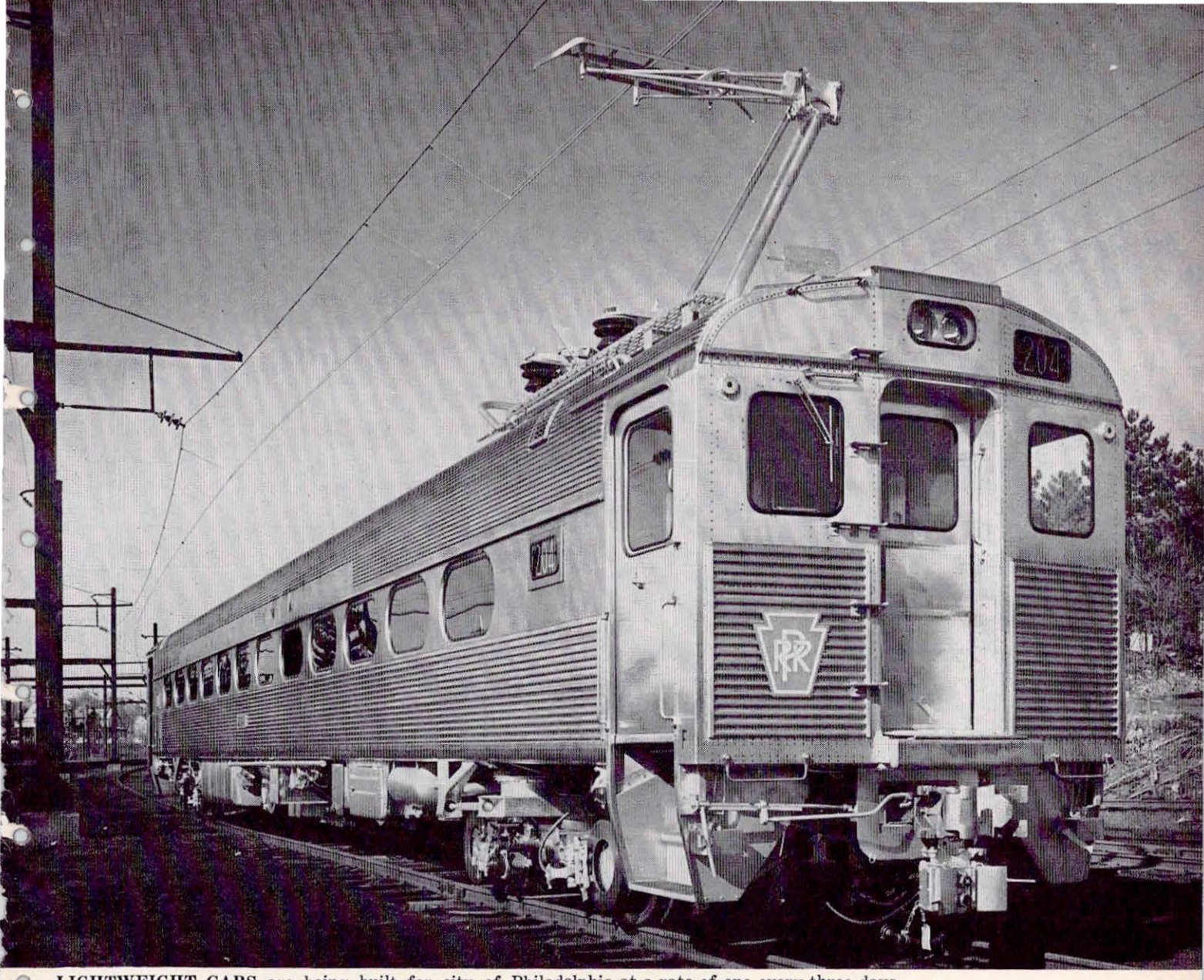
• **Refined and improved.** The cars, being built by the Budd Co., are similar to six placed in service by the PRR in 1958 (RA, June 30, 1958, p. 18). They incorporate refinements and improvements indicated by five years' operation of the prototypes, each of which has run more than 300,000 miles. The cars, characterized by their low profile, 85-foot length, and extreme light weight per passenger, are an adaptation of the Pioneer III passenger coach which was unveiled by Budd in 1956 (RA, July 23, 1956, p. 38).

Philadelphia's plan to improve transportation facilities recognizes that a modern expressway system must be part of an integrated complex of private automobile, transit and suburban services. The city set up a Passenger Service Improvement Corporation to organize its over-all program. Through its Commissioner of Public Property and the Transit Operations Engineer, Philadelphia arranged to purchase the 55 suburban cars at a cost of about $14 million. The PRR and Reading will lease the cars and operate them in their regular schedules under agreement with the PSIC. A similar leasing arrangement with the PSIC enabled the Reading to place 12 new Budd RDC cars in commuter service starting last December (RA, Dec. 3, p. 34).

• **Routes are electrified.** The suburban Philadelphia routes of the PRR and the Reading are electrified with 11,000-volt, 25-cycle alternating current, making it possible to build the same type of car for both roads.

The new cars are approximately 35% longer than standard PRR multiple-unit cars, but weigh 30% less. They can accelerate 50% faster with the same installed horsepower. Top speed is about the same. Riding quality is superior both in suburban and main-line speed ranges. Materials inside and outside are as nearly indestructible as today's designers can make them. Compared with the six prototype Pioneer III M-U cars, there is an increase in light weight (of approximately 12,000 lb) to 101,400 lb. This resulted primarily from the higher-horsepower, lower-speed traction motors, an increase in air-conditioning capacity, and the provision of automatic coupling for electrical and pneumatic train lines. Seating capacity is 124 in cars having toilets, 127 in those without toilets.

The Pioneer III, on which the new M-U coaches are based, differed from other developments of the 1956 lightweight train period. It was an 85-ft car built of high-tensile stainless steel and having four-wheel trucks. To minimize over-all height, the floor was held to 39 inches, while vestibules were the standard 43 inches. The over-all height of 11½ feet gave adequate, but not excessive, head room.



LIGHTWEIGHT CARS are being built for city of Philadelphia at a rate of one every three days.

The six prototype M-U cars, in service almost five years, have demonstrated the improved comfort of modern suspension and air conditioning for suburban service. They have proved the practicability of rectified power for traction purposes and have shown the economy of light weight.

● **'Progressive engineering.'** Building of the six prototypes verified that they could produce the desired performance, demonstrated their acceptance by the public and made it possible to test new devices and radical design features. As one Budd engineer put it recently, "This procedure permits more daring engineering than would be prudent on a production order—it is conservative utilization of progressive engineering."

The PRR has rated the prototypes as good cars and has assigned them so that they accumulate mileage at about three times the normal rate for standard M-U equipment. Some of the problems encountered in service and that were subsequently overcome included: longitudinal oscillation in the truck suspension, brake performance, control and motor problems produced by wheel slippage, and inflation and leveling in the air-suspension system.

● **Stainless-steel center sill.** Structure and sheathing of the new cars is high-tensile austenitic chrome-nickel stainless steel. In the underframe between bolsters is a stainless-steel center sill having a cross-sectional area of eight square inches, at each end of which is welded a fabricated end underframe unit of LAHT steel. The end underframe unit incorporates a double bolster, draft sills, draft-gear pocket, end sill, coupler carrier, and bases of the anti-telescoping posts. Six crossbearers between the bolsters are located to support the heavier units of underframe equipment to best advantage. The floor is supported on shallow stainless-steel Zee sections.

Side framing is a girder design incorporating reinforced corrugated sheets between side sill and belt rails, and smooth pier-panel stampings with rounded window ends above the belt rail. Because of its size and proportions, the roof alone represents a fair portion of the total moment of inertia of the carbody. There are longitudinal stiffeners immediately above the windows, and two external purlines, one each side of the roof center line, extending the length of the car. The corrugated roof sheathing is designed to resist longitudinal compression and shear. Transverse Zee-section carlines maintain the roof contour, extending between the vertical side posts which are centered back of each pier panel.

● **Operator's station in vestibule.** End frames of the carbody are designed as bulkheads, consisting of horizontal members above and below the door. Vestibule end frames incorporate the two main anti-telescoping posts at either side of the end door which extend up

from the projections on the end underframe unit to the exterior roof purlines extending down the top of the car. Each vestibule is fitted with an operator's station.

National Castings AP tight-lock couplers with Waugh WM-5-6 rubber draft gears are used. Automatic electric and air trainline connectors are supported below the coupler. Along with conventional uncoupling from the ground, there is provision for pneumatic uncoupling from the vestibule, a feature used previously on rapid transit cars. There are also hose connections for coupling with conventional equipment when this is necessary.

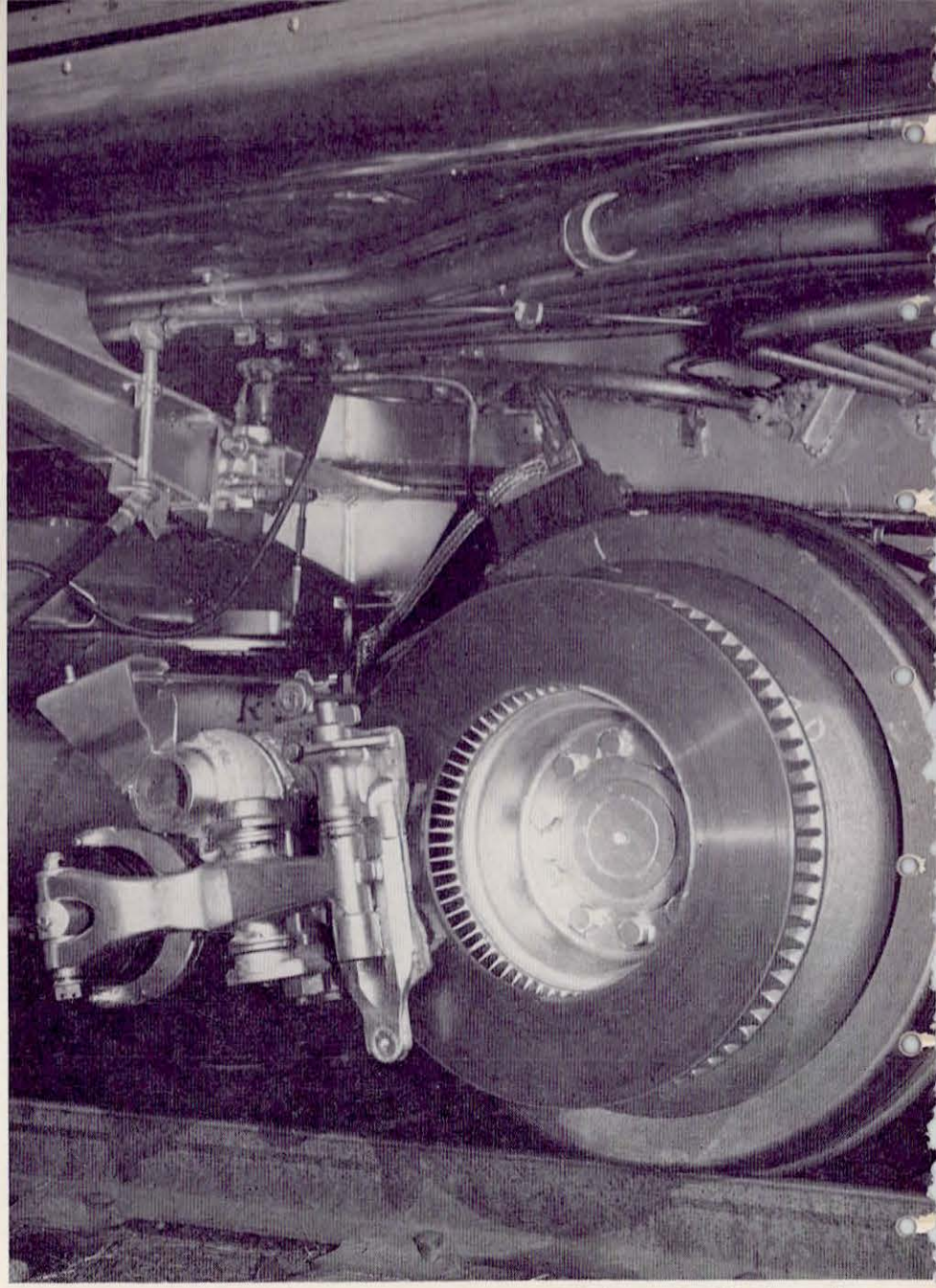
● **Interiors not painted.** No paint is used on the car interiors. The ¾-inch metal-covered plywood floor is covered with vinyl asphalt tile. Ceiling, wainscoting and partition facings are mocha and Aztec-tan-colored melamine. An integrally colored molded plastic unit surrounding each window has no sill and serves as the mounting for the single-glazed safety-glass windows which have graduated tinting to eliminate curtains. A plastic-faced plywood panel closes the lower surface of the center-ceiling air duct. The edges of this panel terminate at the distributor slots which extend the length of the car and are an integral part of the ceiling lighting fixtures.

A series of fluorescent tubes covered with extruded plastic diffusers gives continuous bands of light. Heater guards and body end doors are stainless steel.

Flip-over three-and-two reversible seats have polyether-foam padding covered with Trilok woven-plastic fabric. Anodized satin-finish aluminum parcel racks extend the full length of the car—one side on PRR cars, both sides on Reading cars.

● **Trucks of Pioneer III design.** The trucks are the unorthodox Pioneer III design—a four-wheel equalized arrangement with inside journals and air springs. Essentially, the frame is an X-shaped assembly made in two halves locked together and trammed by the axles and center pivot. The center pivot serves to transmit longitudinal and lateral forces from the bolster to the truck frame while also providing for the tramming action. Vertical loads are carried from the side bearings directly into the main structural portions of the frame which are aligned with the journals.

Flexibility at the center pivot and journals permits the equalizing action during which the frame may twist to a limited degree, accommodating itself to track irregularities. The frame pivots with respect to the bolster which is anchored to the carbody by radius rods at the side sill. The single-system air suspension between the bolster and the carbody consists of a pair of air springs augmented by the bolster which forms an air reservoir. Leveling valves maintain the height of the car floor and assure constant frequency of the vertical oscillations. This produces a soft suspension despite the high proportion of the passenger load to car light weight (20,000 vs. 101,400 pounds) which would otherwise result in too much variation in coupler height. The car is designed to ride as well with only two passengers as when it is fully loaded.



OUTBOARD DISC BRAKES are mounted on wheel hubs to simplify inspection and servicing. Fabricated truck design cuts over-all car weight appreciably.

● **Air supply system.** The air supply is from the brake main reservoir equalizer pipe through a choke and check valve which prevents air-spring failure from affecting operation of the brakes. The pressure in the air-spring system does control the brake-cylinder pressure to produce 2.5 mph per second retardation in emergency, regardless of the weight of the car.

The 32-inch multiple-wear wheels, mounted on hollow axles, are fitted with brake discs applied to the outsides of the hubs for easy access. Inboard journal bearings are clamped in the truck frame by rubber rings which bear directly against the outer races. This rubber ring cushions the frame from the journal shocks and gives the necessary flexibility for equalization.

A parallel drive arrangement having the motor solidly bolted to the gear box uses double-reduction spiral-cut spur gears. The axle gear is mounted on a sleeve which, in turn, is mounted on a flange installed on the axle over a ring of rubber bushings. The motor is supported resiliently on the truck frame, serving as its own torque arm.

The truck and drive are designed to

give maximum simplicity for a mechanism which incorporates all the motions normally associated with a conventionally equalized truck. Wear points are virtually eliminated. Those parts which do make contact are faced with replaceable wear-resisting materials.

● **Top speed is 89 mph.** The traction equipment accelerates the car at a rate of 1.7 mph per second to 35 mph with speed limited to 89 mph. Brake retardation is also 1.7 mph per second for the fully loaded 121,000-pound car in full service position. Emergency braking deceleration is 2.5 mph per second, light or loaded. GE wheel-slip protection supplies the velocity signals to support these acceleration and braking levels.

To produce this performance, traction motors have been stepped up from 100 horsepower each on the prototype to 156 horsepower and the main transformer from 660 to 735 kva. Power is taken from the 11,000-volt, 25-cycle, single-phase overhead trolley by a GE Faively pantograph. The transformer has three secondary windings. By means of solenoid-operated pneumatic tap switches, output may be 637, 1,183, or 1,755 volts, with a nearly continuous voltage variation between these values available for acceleration through a pair of ignitron tubes used as a phase-displacement control. This variable alternating current is fed to the silicon diode rectifiers where it is changed to pulsating direct current and, after passing through a smoothing reactor, goes to the traction motors. The ignitron phase-displacement control eliminates d-c control resistors, increasing efficiency and removing a source of heat. The prototype-car power system is less sophisticated, a constant-voltage transformer output being rectified by ignitron tubes to 600 volts d-c. Motor control is a combination of conventional resistors and series parallel switching.

● **Power reduced at 85 mph.** The four traction motors are geared for 4,530 rpm at 85 mph. Maximum permissible is 5,070 rpm, corresponding to 95 mph, although speed-limiting controls take over at 89 mph. Overspeed protection automatically cuts power at 85 mph and sets minimum service brakes at 89 mph. The final drive gears provide a 5.68 to 1 ratio in a double-reduction system, and the drive is parallel to the axles rather than being at right angles.

Auxiliary power, largely a-c, comes from two motor-alternator sets—a 3-kw, 220-volt unit for fluorescent lighting and a 33-kw, 3-phase, 220-volt unit for air conditioning, the air compressor, and the blower which cools the transformer and smoothing reactor. Electric heating is from the 572-volt tap on the transformer secondary.

● **More air conditioning.** Air conditioning has been increased from 8 tons on the prototypes to 10 tons to cope better with the large number of passengers and Philadelphia weather. Two five-ton package units at the ends of the car feed the diagonally split center-ceiling duct, meaning that each unit delivers cool air through the entire length of the car for better results in case one unit fails. These are 220-volt hermetically sealed units, including compressor-condenser evaporator and distributor blower, which may be rolled out the body end door for servicing and testing without disconnecting freon lines. Condenser air is taken in through the car side and exhausted through the floor. Fresh air enters higher on the car side and enters a plenum through filters. Recirculated air enters from the aisle face through filters to the same plenum, mixes with the fresh air, passes through the evaporator, and is blown through the distribution duct.

Air for the Wabco 26R automatic air brake is supplied by a resiliently mounted compressor under each car. Air brakes are used because dynamic braking was not applicable to this type of service without an increase in motor capacity and additional control equipment and resistors which are not needed for acceleration. The PRR cars have cab signals and automatic train stop.

The underfloor equipment, located for pit servicing on the prototypes, has been rearranged for servicing from the side so that work can be done in yards.

Partial List of Specialties on New Commuter Cars

Trucks, truck brakes, and underframes	Budd Co.
Axles	Timken Roller Bearing Co.
Truck air springs	Firestone Industrial Products Co.
Wheel anti-slip control	General Electric Co.
Journal bearings	S K F Industries, Inc. Timken Roller Bearing Co.
Couplers	Ohio Brass Co. National Castings Co.
Yokes	National Castings Co.
Draft gears	Waugh Equipment Co.
Traction equipment and gearing	General Electric Co.
Hand brake	Ellcon-National, Inc.
Air-brake equipment, air compressor	Westinghouse Air Brake Co.
Air compressor motor	General Electric Co.
Air-conditioning equipment	Safety Electrical Equipment Corp.
Heating and cooling controls	Vapor Corp.
Floor heaters	Ogontz Controls Co.
Insulation, body	Gustin-Bacon Mfg. Co.
Floor tile	Johns-Manville
Seats	Heywood-Wakefield Co.
Hinged sash, cab; parcel racks	Adams & Westlake Co.
Tinted sash	Safety Glass Co. Pittsburgh Plate Glass Co.
Cab signals	Union Switch & Signal Div. of Westinghouse Air Brake Co.
Ceiling light fixtures	Translite, Inc.

Space-Age Railroads: Technology

Technology's important role in the effective and economical rail movement of people and commodities in coming decades was underscored at an engineering societies' railroad conference in Atlanta, Ga., late last month. In the years ahead, when much of the public's attention (and resources) promises to be devoted to problems of transportation in outer space, members of the American Society of Mechanical Engineers and of the Institute of Electrical and Electronics Engineers were told, North American railroad operators can be making great progress in a more prosaic, but probably more vital, transport realm.

● **Down-to-earth.** Technology is not the sole key to such progress, D. W. Brosnan, president of the Southern, warned the group. Elimination of "lopsided" regulation which frequently prevents U.S. railroads from competing effectively is of great importance. "We need the right to express technology in terms of lower prices," Mr. Brosnan said.

"The way that a railroad can make a living in this age, or any other, is to increase its usefulness to the people it serves," he advised. Mr. Brosnan went on to show how Southern's marketing and pricing studies have led to many rolling-stock innovations. He indicated that high-capacity cars are essential, citing, in addition to the celebrated "Big John" covered-hopper grain movements, other successful equipment developments, including:

- The high-capacity, pneumatically unloaded "Quad Pod" cement car (RA, March 18, p. 18), of which the Southern will be ordering additional units;
- The "Silver Sides" aluminum gondolas (RA, April 4, 1960, p. 12); two trains of which are now moving 16,000 tons of coal 150 miles daily in Alabama (RA, Aug. 28, 1961, p. 24);
- The 1,200 sliding-sill box cars (RA, Jan. 2, 1961, p. 62) which Mr. Brosnan said "have put the Southern back in the business of handling fragile freight";
- The 10,000-cu ft, 85-ft-long box cars (RA, Dec. 18/25, 1961, p. 35) which have enabled the road to recapture its once-lost tobacco traffic and which are now going into other services; one recently moved, as a single load, 104 three-piece bedroom suites from Hickory, N.C., to Chicago.

Mr. Brosnan expressed less optimism about the prospects for rail passenger service, but indicated that its problems are not technologically insurmountable. The railroads "can develop any sort of passenger transportation the public wants, if the money is available." Such developments, by privately owned companies, must be accompanied by assurances that the projects will be self liquidating if they are privately financed.

● **Rapid transit.** Segments of rail passenger service—those within and into North America's growing metropolitan centers—are already recognized as being public needs so overpowering that public financing is accepted.

"A resurgence is taking place in rapid transit," R. L. Lich, assistant vice-president of General Steel Industries, told the ASME-IEEE meeting. "It is becoming nationally recognized that rapid transit is the key to the long-term solution of the transportation problem plaguing major metropolitan centers. Planning for new systems is under way. Established systems are being renovated and expanded. "With practically all population growth occurring in metropolitan areas, well over half of America's people soon will be concentrated in just 40 great metropolitan complexes. Because of increased distances and greater movement within these areas, the urban transportation requirement is rapidly growing, particularly peak-hour loads.

'Total' concept stressed

"The general solution to the transportation problem in our major metropolitan areas must lie in a total transportation concept in which all modes—expressway, bus feeder, rapid transit and commuter railroad systems—are blended together in a combined and coordinated system under a comprehensive plan," Mr. Lich explained. "Each mode can provide certain types of service more efficiently than the others.

"Rapid transit is the key. Its great capacity, high reliability, speed, efficiency and minimal land use enable it to be the backbone of the coordinated system by providing the necessary peak-hour capability along the major arterial routes. This is the principal transportation load in major metropolitan centers and the basic cause of their problems.

"The rapid-transit backbone arterial routes would form essentially a radial pattern, with the downtown area at the center and the suburbs at the extremities. Wherever possible, the routes would utilize existing rights-of-way. In every metropolitan area there is an extensive network of rail lines. Most of these are being used infrequently. Selected portions of these networks could be used with great savings.

● **Justifying rapid transit.** "Justification of new rapid-transit systems requires swift, reliable, efficient, safe, attractive, comfortable and economical rolling stock," Mr. Lich said. Public acceptance is a critical factor. To attract passengers, the equipment must excel in appearance, have excellent riding qualities, present a low internal and external noise level, and produce a comfortable year-round climate.

System effectiveness and economy are also vital. The equipment must provide high performance in accelerating and braking along with high availability. Economic life must be long and maintenance and servicing costs minimal.

All these are producing a rapidly growing demand for advanced rapid-transit equipment. New designs, methods, materials, components and concepts are being developed to meet this challenge. "Metropolitan areas are now rapidly moving ahead in developing comprehensive solutions to their transportation problems," Mr. Lich concluded. "These solutions will be expedited through federal and state assistance. All who will plan, build, operate and ride the new rapid-transit systems can look to an exciting future."

"The coming decade should see at least a dozen of our largest metropolitan centers using, or committed to use, rail rapid transit for their high-volume, trunk-line passenger transportation," J. E. Wallace of General Electric's metropolitan transportation organization predicted. It will be necessary and inevitable, he added, to automate both new and existing transit properties because:

- Specified service frequency and scheduled speeds can be obtained only with a closely integrated automated train operation system being beyond the capabilities of manual operation.
- Manual operation, not capable of the frequency and speeds, would require a larger equipment investment even to approach the desired performance, resulting in increased labor, maintenance and power costs.

Mr. Wallace advocated a decentralized approach to the automation of train operations, with individual trains carrying as much of the decision-mak-

is Vital

Diverse rail transportation developments, ranging from rapid transit to automated freight trains, were spotlighted at an engineering-society-sponsored railroad conference in Atlanta.

ing equipment as possible and with a central programmer functioning only to prevent "undesirable" interactions between trains and to maintain overall system balance.

● **Automating rapid transit.** Automation of rapid transit and conventional railroad operations was reviewed by two Westinghouse Air Brake engineers — C. M. Hines, engineering manager, and J. R. Pier, manager of mass transit engineering.

"Automation of rail vehicles when properly applied will result in more efficient operation of trains," they reported. "Schedule times will be reduced without large increases in maximum speeds. Maintenance costs will decrease by virtue of the ideal manipulation of controls available through automatic programming. Fewer cars and trains can provide better service and move more goods and people. Safer operation will also be achieved.

Effect on freight trains

"Another aspect of automation often overlooked is its effect on train handling, especially in freight service. The principles of good train handling are well documented, but are loosely followed by most operating people. When automated operation is installed, however, these principles are followed to the letter with consequent good and consistent train handling."

Commenting on the automation of the Times Square—Grand Central Shuttle of the New York City Transit Authority which has been operating since early 1962 (RA, Oct. 17, 1960, p. 26; Nov. 14, 1960, p. 40), they pointed out that "there has been no reluctance on the part of passengers to ride an automated train, a factor which has often been listed as an objection to automation.

"Automation of the new San Francisco transit system (RA, July 31, 1961, p. 34) is a definite possibility," they continued. "Automation is also being considered in proposals for Los Angeles. On these new systems the maximum benefits should be realized since the total system can be designed for automation.

"This does not mean that automation cannot help existing mass transit systems. To bear this out, a pilot project is presently being considered for the Revere Beach line of the Metropolitan Transit Authority in Boston. This application will provide the precision of automated operation on existing car equipment and with signaling techniques which are well established."

● **Automating freight trains.** Automation of freight trains made up of conventional interchange cars is completely practicable. It was explained that the automation of the Iron Ore Co. of Canada in Labrador (RA, Sept. 3, 1962, p. 12) involved installation of a simple electro-pneumatic brake on each of the cars to meet the narrow spotting tolerances required.

The WABCO engineers then went on to point out that a mining railroad in the western U.S. handling conventional interchange equipment has also been automated. This railroad extends approximately 75 miles, including 12 miles of 2% grade in addition to many curves and grade crossings.

Seventy-five loaded ore cars are moved from an agglomerating plant to a railroad connecting point, and the return trip is made with a similar train of empties. Interchange cars are used, so no special car equipment is possible.

To meet these requirements, an intermittent wayside control system was selected, utilizing passive track elements and active locomotive-carried sensing units. To meet the relatively short schedule times, five speed zones were designated—15, 20, 25, 30 and 40 mph.

The locomotive-carried equipment consists of three basic systems—the communications system which receives intelligence from the wayside and transmits to other control units in the locomotive; the throttle control system, and the brake control system.

A special sub-system was incorporated in the automated brake equipment to monitor brake-pipe integrity each time the control transfers to automatic. Achieving this without radio or electrical communication to the last car required the development of a portable pneumatic unit, the Brake Pipe Integrity Checker, which is hung on the last car and connected to the brake-pipe hose. Each time a change to automated operation is initiated, an emergency application occurs. As brake-pipe pressure increases to a level about 15 lb per square inch below the full-charge value, the Brake Pipe Integrity Checker initiates a service brake application from the rear end of the train. When this application reaches the locomotive it serves as evidence that the brake pipe is continuous.

By means of automation, it has now become possible to move heavy tonnage trains down precarious grades with no skilled manpower but with maximum safety and reliability. While remote control of freight operations does not strictly fall within the category of train automation, much of the equipment is similar, the major difference being that decision making is left to the operator, simplifying the control problem.

● **Remote multiple-unit.** From the standpoint of over-the-road operations, the most significant remote control contribution has been in the Remote Multiple-Unit Control System. In this, motive power is distributed at several locations in the train rather than being concentrated at the front end. Throttle and brake manipulation are performed by the engineman on the lead locomotive in a normal fashion, but the remote multiple-unit equipment transmits information representing these operations via radio to the locomotive units spaced back in the train so that operations performed on the lead unit are duplicated on all remote units.

Longer trains possible

Remotely controlled multiple-unit systems of this type have been tested on several railroads. In every case, it is possible to run longer trains at higher speeds with little or no slack action. The distribution of motive power reduces the danger of drawbar failures, and the distribution of brake control makes possible much faster applications and releases. With proper spacing of the remote units, freight-train control can approach that which was once possible only with passenger train brake equipment.

Where distribution of tractive effort is not required but improved brake performance is desired, a Repeater Relay Equipment unit is available. This fully pneumatic device can be installed in an ordinary box car, midway in the train, connected to the brake pipe of the existing brake system. An engine-driven air compressor mounted in the same car provides an air source. The Repeater Relay then repeats to the rear section of the train all brake operations sensed from the brake pipe of the front section, providing, in effect, another brake valve in the middle of the train. Brake charging times and brake-pipe gradients are all improved noticeably by such an installation.

Computers: An Aid To Transit Planning

By P. J. Iovin and J. V. Ellis*

When the transportation engineer is handed the task of creating a new concept of public transportation his first thoughts are concerned with the opportunity to bring to reality modern sleek vehicles gliding silently under city streets at unprecedented speeds. Then, as reality rears its ugly head, the tasks pyramid, the job of sorting fact from fancy arises, and the need for economy further limits fanciful excursions.

As the project gathers momentum, the car designer creates and compromises, the electrification engineer ponders the seemingly impossible task of supplying energy to move vehicles at tremendous rates of acceleration, and the ventilation engineer is confronted with the task of removing heat dissipated in the tunnel by vehicle deceleration. The alignment engineer, in planning the route for high speed operation of trains, encounters underground a tangle of substructures, consisting of sewers, storm drains, and building foundations. The structural engineer, responsible for the integrity of the underground structures, continues to request alignment changes to satisfy unusual conditions.

● **Hectic first week.** The task of automating and keeping the trains running safely, swiftly and reliably on schedule finds the signal and controls engineer in a state of bewilderment. But this is the first week, and the project manager and the planners know that one fact is inescapable: five months and three weeks from this date the project must be completed.

By the second week a plan is formulated, which, in theory, will produce most of the answers early in the program. A new member of the team is added: the computer applications engineer.

A search of existing data indicates that no computer program has been developed which would provide all the answers required by the project. Thus it becomes necessary for Kaiser Engineers to develop a program which in addition to furnishing speed, time and power data will also provide the engineers with information such as: additional energy requirements necessary to overcome piston resistance in the tunnel, and how much heat is being released to aid in planning ventilation.

In the attempt to provide answers leading to the development of system components and facilities, a computer program, creating a mathematical model of the system, is developed. The use of a program of this type allows the designer to present the analysis of an infinite number of solutions for selection. Without the computer program, the engineer, compelled by time limitations in the normal pursuit of a project, is not allowed to explore as many alternates as he would like to. In fact, he must of necessity narrow his choice to several prejudged alternates, and then proceed laboriously with slide rule to arrive at order of magnitude answers.

The program as developed has finally satisfied everyone's requirements after preliminary trial runs, "de-bugging" and ultimate application. The description can now be formalized as follows.

● **Program description.** Four types of data are necessary as input to the program: Car data, motor characteristics, track data, and performance limitations.

(1) *Car data:* (a) car length (b) cross sectional area and streamlining of cars, (c) car weight, (d) number of cars in train, (e) number of passengers per car, (f) gear ratio and wheel size.

(2) *Motor characteristics:* (a) tractive effort—velocity curve, (b) velocity—ampere curve, (c) line voltage.

(3) *Track data:* (a) horizontal alignment (degree of curvature), (b) vertical alignment (per cent of grades), (c) tunnel dimension, area and portal position, (d) speed restrictions (curve limitations), (e) station position and station profile.

(4) *Performance limitations:* (a) maximum speed, (b) station stop time, (c) dynamic braking rate, (d) maximum acceleration rate, (e) per cent leeway of acceleration and deceleration curve transition.

● **Method of computation.** Train velocity is used as the variable parameter. Velocity is incremented as the train leaves the station and the resistances are calculated. Time and distance are then determined. If any velocity increment causes the train to overrun a change in track condition (curve, grade or tunnel portal), the velocity increment is revised by interpolating the distance from the last increment to the change point. This method is also used to determine the point at which to slow down for a station stop, or speed restriction. Once the point is determined, the train proceeds with respect to its new conditions. When the train reaches the next station, the station stop time and leeway time (for curve transition) are added to the accumulated run time. This procedure is continued to the far end of the line. When the last station is reached the program reinitiates itself then reverses the track data, and runs the train back to the terminal station. At this point if any further cases are to be considered the train will be reinitiated and rerun following the same method.

The formulas necessary to calculate time, distance and acceleration are the classic equations of motion. Modified Davis equations are used to determine train resistance.

● **Output format.** As the program accomplishes each increment in speed, a line of print is generated. The output listing includes the following items: speed, maximum speed or speed limit, accumulated time, accumulated distance, rate of acceleration, per cent grade of track, and degree of track curvature; resistance encountered by train (including journal resistance, flange resistance, air resistance, piston effect, grade resistance, curve resistance, sum of all resistances); pounds tractive effort at rail, pounds accelerative effort, car amperes, accumulated amp seconds, accumulated amp square seconds, and accumulated amp square seconds dynamic braking.

Much more information is internally generated but not necessary to the solution of present problems. That information can easily be made available by minor program modifications. From the above data, performance such as average speed, power consumption and motor heating is easily and readily discernible.

The output data has enabled alignment to be investigated, refined, and adjusted within short periods of time, and without the lengthy and costly methods done manually. It has enabled time schedules to be made for traffic studies; engineering of the electrical distribution system to be facilitated from results of train power consumption and schedules; automatic control systems resolved on basis of speed-time operation; actual operation of drive motors studies for suitability and performance; and the ventilation of tunnels engineered to remove heat dissipated.

*Mr. Iovin is engineering manager, transportation, and Mr. Ellis is project engineer, transportation, Southern California Office, Kaiser Engineers.

NEW PRODUCTS REPORT

Cement Additive (RA-1)

White, liquid Re-Crete added to Portland cements permits spot patching or resurfacing with a ¼-in. surface over rough or worn concrete. Removal of old surface is not necessary; after the area is cleaned, the new surface can be applied. Because the new surface is thin, edges can be feathered around machinery or at any patch application. Surfaces applied over the week end can be ready by Monday. *American Lubricants Co.*

Battery-Charger (RA-2)

A new battery-charger combination is available as a power source for highway crossing protection equipment. The combination consists of an AutoReg automatic constant-voltage charger, and PlastiCal battery. The charger automatically maintains the battery at correct charge without requiring adjustments for aging. It compensates automatically for variations in AC input as great as ±10%. *C&D Batteries, Div. Electric Autolite Co.*

Current Limiter (RA-3)

A new completely solid-state current limit control is an accessory to the model 101 series of solid-state voltage regulators for 37-volt, 75-volt and 125-volt auxiliary generator charging systems. The new unit (model CL 101) is externally adjustable between 50 and 400 amp. (not 100 amp. as reported in RA, April 15, p. 33). It replaces the limiting resistor and/or measuring shunt required on most auxiliary systems. *Thomas A. Edison Industries.*

Ohmmeter (RA-4)

A direct reading low resistance ohmmeter may be used in measuring relay contact resistances or other low resistances. The meter can read values as low as .005 ohm. The center scale value is .3 ohm, and the one-fourth scale value is .1 ohm. Resistance readings are measured to an accuracy of 5%. Power is supplied by three 1.5-volt size D cells connected in parallel. Maximum applied voltage is 50 millivolts. *Union Switch & Signal.*

Safety Glass Frames (RA-5)

An all-black frame has been added to the F9800 Durasafe line of all-plastic safety glasses, to make the glasses more attractive to workers. The glasses are available in smoke, pink crystal, mahogany, two-tone smoke on crystal, black on crystal, and black. The safety glasses come in a complete range of bridge and eye sizes and are available with or without protective side shields. *American Optical Company.*

Perforated Lockers (RA-6)

Small perforations in these lockers allow free air circulation to combat moisture. The lockers are available from the manufacturer in a variety of sizes and styles, and the round perforations can be located in doors, sides, tops, and backs; or only in specified surfaces. Perforations are large enough to allow free air circulation, but visibility of contents is retarded, discouraging theft and guarding against damage. *Lyon Metal Products.*

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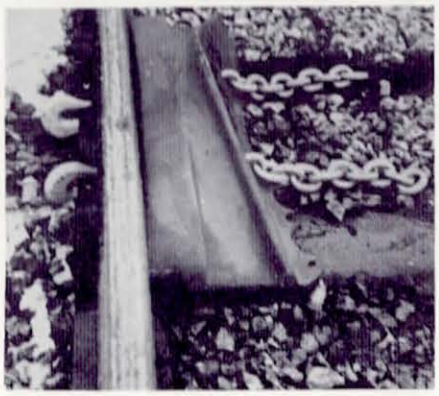

Car Replacer (RA-7)

The Aldon double-end car replacer has ½-in. wrecking chains to clamp rigidly to the rail at any angle. This feature is said to stop side motion and retard forward travel when one chain is used. Use of both chains controls forward and backward thrusts. After threading the chain through the slotted casting holes, the hook is attached to the rail base and the other end placed in the slot. Sizes are available for 70- to 100-lb rail. *Aldon Co.*

Thermostat Controls (RA-8)

The Thomson heavy-duty cooling system thermostats featuring the Elac elastomeric power actuator are for diesel and gasoline-engine replacement applications in truck and off-the-road heavy equipment fleets. The actuator is said to assure reliable cooling-system control under extremes of ambient temperature, load, and mechanical vibration. The brass and stainless steel thermostats have a self-aligning valve. *Standard Thomson Corp.*

New Literature

BUCYRUS-ERIE PRODUCT DIRECTORY. Details the complete line of Bucyrus-Erie Co.'s crane-excavator equipment manufactured in the firm's domestic and Canadian plants. (NL-1)

OVERHEAD MAINTENANCE EQUIPMENT. A catalog-brochure with complete specifications for the five model series of Rota-Loft overhead maintenance equipment made by the Hubbard Manufacturing Co. (NL-2)

RECEIVING, SORTING AND DISPATCHING IN TRUCK TERMINALS. A case history bulletin, issued by the Harry J. Ferguson Co., based on specific experiences by the firm, which manufactures "Streamliner" conveyor equipment. (NL-3)

MACHINE CUTTING TORCHES. A new 16-page catalog describing a complete line of Oxweld machine cutting torches and accessories has been issued by the Linde Co., Division of Union Carbide Corp. (NL-4)

KAMLOK COUPLERS. A new catalog from the OPW Division of the Dover Corp. featuring OPW Kamlok couplers and adaptors, which are quick connect-disconnect couplings for hose and pipe. (NL-5)

ANTI-SEIZE. A catalog about ANTI-SEIZE, a new multi-purpose molybdenum disulfide lubricant that has no melting point, has been issued by the Bel-Ray Co. (NL-6)

MAINTENANCE GUIDE FOR FLOORS, STAIRWAYS AND STEEL DECKING. This Rust-Oleum Corp. publication includes detailed application and surface preparation instructions for using Rust-Oleum general purpose floor coatings and heavy-duty floor coatings. (NL-7)

HARD SURFACING ELECTRODES AND AUTOMATIC WIRES. A 24-page brochure from the McKay Co. offering a complete description of the firm's hard surfacing electrodes and automatic wires. (NL-8)

NEVER-SEEZE. A new all-purpose compound which prevents metal-to-metal seizure and provides positive action is described in this new bulletin from the C. Lee Cook Division of the Dover Corp. (NL-9)

OUTDOOR LIGHTING. A 48-page contractor price catalog illustrating the Stonco Electric Products Co.'s entire cast aluminum line of outdoor lighting equipment. (NL-10)

THE FINDING SYSTEM. This booklet, published by Ross-Martin Co., is a blueprint for transforming the drawer file into a true finding system rather than a storage system. (NL-11)

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Market Outlook

Loadings Rise 2.7% Above Previous Week's

Loadings of revenue freight in the week ended April 27 totaled 576,839 cars, the Association of American Railroads announced on May 2. This was an increase of 15,389 cars, or 2.7%, compared with the previous week; a decrease of 1,026 cars, or 0.2%, compared with the corresponding week last year; and an increase of 32,460 cars, or 6%, compared with the equivalent 1961 week. Ton-miles generated by carloadings in the week ended April 27 are estimated at approximately 12.4 billion, an increase of 6% over the corresponding week of 1962, and 17.0% over 1961.

REVENUE FREIGHT CARLOADINGS
For the week ended Saturday, April 27

District	1963	1962	1961
Eastern	82,542	81,316	79,429
Allegheny	100,576	95,277	86,700
Pocahontas	56,133	53,151	46,357
Southern	117,666	114,814	109,466
Northwestern	65,081	96,540	64,472
Central Western	114,605	116,808	117,655
Southwestern	40,236	39,959	40,300
Total Western Districts	219,922	233,307	222,427
Total All Roads	576,839	577,865	544,379
Commodities:			
Grain and grain products	53,643	50,763	49,699
Livestock	3,574	4,014	4,750
Coal	110,759	103,853	93,710
Coke	8,252	7,427	5,917
Forest Products	35,872	37,391	36,656
Ore	25,543	36,585	21,455
Merchandise l.c.l.	17,922	24,135	29,276
Miscellaneous	321,274	313,697	302,916
April 27	576,839	577,865	544,379
April 20	561,450	569,493	533,037
April 13	556,081	554,866	522,445
April 6	546,065	547,674	505,930
March 30	558,611	565,098	506,917
Carloadings total, 17 weeks	8,840,877	9,151,960	8,490,076
Estimated revenue ton-miles (millions), 17 weeks	194,700	189,800	169,910

PIGGYBACK CARLOADINGS.—U. S. piggyback loadings for the week ended April 20 totaled 15,192 cars, compared with 13,267 for the corresponding 1962 week. Loadings for 1963 up to April 20 totaled 233,242 cars, compared with 204,619 for the corresponding period of 1962.

IN CANADA.—Carloadings for the seven-day period ended April 14 totaled 54,278 cars, compared with 60,936 for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada		
April 14, 1963	54,278	21,889
April 14, 1962	59,768	23,176
Cumulative Totals		
April 14, 1963	885,181	335,078
April 14, 1962	906,642	350,337

New Equipment

FREIGHT-TRAIN CARS

► *Central of Georgia.*—Ordered 570 new freight cars—200 50-ft, 70-ton cushion underframe box cars and 370 50-ton, 60½-ft box cars with 9-ft doors. Builders have not been specified. Order is part of a $9-million equipment program that also calls for purchase of five locomotives.

► *Chicago Great Western.*—Ordered three 55-ton flat cars from ACF for delivery in April.

► *Katy.*—Will lease 100 cushion underframe box cars, 50 for assigned service to be built by General American and 50 to be built by Pullman-Standard, for delivery in August.

► *Pittsburgh & Lake Erie.*—Ordered 300 70-ton box cars, equipped for shock absorption, from Despatch Shops at East Rochester, N. Y., at a cost of $4.35 million. Delivery will begin in September.

► *Soo Line.*—Placed orders for 222 roller-bearing freight cars as part of a previously-authorized, $7.5-million equipment program (RA, Dec. 17, 1962, p. 43). Included are 60 50-ft, 70-ton insulated box cars from General American, to be equipped with hydraulic cushion underframes, 10-ft plug doors and lading-protection devices; 15 Airslide covered-hopper cars and 80 50½-ft, 70-ton box cars equipped with hydraulic cushion underframes, nailable steel floors, 10-ft plug doors and lading devices, also from General American; 19 60-ft, 70-ton flat cars from Thrall, equipped with special tie-down mechanisms for securing farm tractors; 30 52½-ft, 70-ton gondola cars from Ortner; from company shops: eight 53½-ft, 70-ton flat cars; and 10 85-ft, 70-ton flat cars from Bethlehem Steel.

Purchases & Inventories

► *January Purchases Down 6.0%.*—Purchases by domestic railroads of fuel, material and supplies in the first month of this year were $6,847,000, or 6.0%, lower than in the corresponding month of 1962. Purchases and inventory estimates in following tables were prepared by Railway Age.

*PURCHASES**	*January 1963*	*January 1962*
	(000)	*(000)*
Rail	$ 2,441	$ 3,834
Crossties	3,683	3,223
Other Material	69,954	73,586
Fuel	30,838	33,120
Total	$106,916	$113,763

* Subject to revision.

INVENTORIES †*	*January 1, 1963*	*January 1, 1962*
	(000)	*(000)*
Rail	$ 39,352	$ 40,156
Crossties	63,420	75,629
Other Material	321,943	329,114
Scrap	24,963	27,342
Fuel	23,728	22,884
Total	$473,406	$495,125

* Subject to revision.
† All total inventory figures taken from ICC statement Q-125 for month indicated.

WATCHING WASHINGTON WITH WALTER TAFT

TAFT

● **ANY STRIKE** over grievances within the jurisdiction of the National Railroad Adjustment Board is barred by the Railway Labor Act. That's the effect of the United States Supreme Court's decision in the so-called Louisville & Nashville case. It was a 6-to-3 decision announced last week in an opinion by Justice Stewart. It refines the rule of the Chicago River & Indiana case which the Court decided in 1957. That decision was a determination to the effect that Adjustment Board procedures comprise a compulsory-arbitration plan, and that the Norris-LaGuardia Act is no bar to court orders enjoining strikes over the "minor" disputes involved. The CR&I dispute, however, was pending before the NRAB when the threatened strike was enjoined. The strike threat against the L&N came out of a dispute already passed on by the Board. This different situation was relied on by the "op" unions in claiming the right to strike.

THE DISPUTE arose when the L&N dismissed an employee, who was a member of the Brotherhood of Locomotive Firemen & Enginemen, on the ground that he had assaulted two fellow employees. Failing in an undertaking to get the railroad to reinstate the employee, the BLF&E posed a strike threat.

BEFORE A WALKOUT OCCURRED, the L&N submitted the dispute to NRAB, and the Board sustained the employee's claim for reinstatement. Its brief order required that he be paid "for time lost as the rule is construed on the property." Another dispute arose over the interpretation of the quoted language. The union claimed that the Board intended to award the employee full pay, and the railroad contended that his earnings from other employment should be deducted. NRAB refused to assist with a clarification of its order.

ANOTHER STRIKE THREAT was the upshot. And L&N then obtained the injunction which the Supreme Court upheld. In doing so, the Court rejected the unions' contention that the rule of the Chicago River case "is limited to those situations in which a strike is called during the proceedings before the Adjustment Board." The argument that strikes may be called after the Board makes an award was dismissed as "untenable."

THE COURT also made it clear that the strike ban applies to cases involving money awards, like the present dispute, as well as to other grievance cases. As to the latter, the Chicago River decision determined that awards of NRAB are final and binding. As to the former, the present decision determines that findings of the courts, where enforcement of money awards may be sought, are final and binding.

FOR MONEY-AWARD CASES, Congress, "in effect, decreed a two-step grievance procedure," making judicial review an "integral part" of that machinery, the Court said. It added: "To allow one of the parties to resort to economic self-help at this point in the process would violate this direct statutory command. It would permit that party to withdraw at will from the process of settlement which Congress has expressly required both parties to follow. . . . A strike in these circumstances would be no less disruptive of the explicit grievance procedure than was the strike enjoined in the Chicago River case."

A DISSENTING OPINION came from Justice Goldberg, with whom Justice Douglas agreed. Their view was that strikes to enforce money awards should not be enjoined. The other dissenter was Justice Black.

Piggyback Problems Explored

The experts agree that TOFC's future is bright — but danger spots are beginning to appear.

Railroading's most promising technical and competitively effective achievement of the past decade—mushrooming TOFC operation—is facing some severe tests in the future, according to an array of experts who gathered at Chicago April 24-25 for a close look at TOFC's promise—and problems.

The experts, meeting for the Railway Systems and Management Association session on TOFC and Containerization, assessed TOFC's future as bright but threatened with dangers from both within and without the rail industry. Some of the problems facing TOFC:

- The Interstate Commerce Commission's proposed new rules could blight the rapid growth of piggyback.
- Standardization of TOFC accounting practices, and accurate statistical summarization, must be effected so that rail executives can have uniform and valid information upon which to base decisions for the increasingly expensive —and changing—hardware needs of TOFC operation.
- Development of containerization is hampered by questions of whose investment—railroad or shipper—will be in the containers.
- Research needs to be done to determine the new optimum service requirements of TOFC operation. Rail experience may show that less elaborate terminal facilities, in conjunction with shorter trains—so that arrivals will not strain the ability of the terminal to handle—may well be a route to greater TOFC gains, especially if work rules are updated to allow efficient manpower use to improve service to shippers.
- TOFC cost accounting needs to be designed so that management's decisions on potential markets and railroad penetration of these markets can result in maximized profits.

Almost all the RSMA panel of experts expressed serious misgivings over the proposed ICC plans for TOFC.

Two new plans (intended to supplant the five TOFC plans evolved in use during the last decade) would be: (1) joint intermodal TOFC service—all movements that included a rail plus motor carrier or barge portion of a trip, and (2) all-rail TOFC service, where common motor carrier or barge carriers would not be involved.

Conference keynote speaker Morris Forgash, president of United States Freight Company, told the overflow RSMA audience of the need to get TOFC ready "for the trillion-dollar national economy coming up."

● **TOFC traffic increasing.** He cited the significance of the fact that TOFC, as a category of rail traffic, is sharply increasing during a period of rail traffic decline. TOFC, he noted, has not reversed the downward trend—but has stopped the downward trend in the single most important category of freight—manufactured products. "Thus, while total rail carloadings fell off by almost a million cars between 1958 and 1961, carloadings of manufactured and miscellaneous products rose by about a thousand cars in the same period. Inasmuch as a third of all rail carloadings fall in the category of manufactured and miscellaneous commodities, this performance is tremendously important," Mr. Forgash said.

He warned of the dangers in present ICC proposals: "Piggybacking is a railroad innovation, designed as a measure of self-help. It was not conceived of as a means of improving the posture of the competitors of the railroads." Mr. Forgash outlined the dangers in allowing TOFC use that obliterates the railroad from shipper contact: "What is to prevent the motor carriers from fixing rates that will take away rail Plan II, Plan III or even box car traffic? And when they take away this traffic—they can hand it back to the railroads at the bargain basement Plan I charges. The railroads will lose their identity with the shippers and, in the long run, face the risk of becoming subservient dependents of the trucking industry. Piggyback has almost unlimited potential—but it can be destroyed from without or from within and the result will be exactly the same either way." Mr. Forgash warned that if present trends continue, with declining revenues every year, the answer could be nationalization in five years. "TOFC can provide answers . . . and arrest the declining trend in rail traffic and revenues." He cited the need for keeping TOFC free of unrealistic regulation.

● **Confusion ahead?** John E. McCullough, general solicitor for the Frisco, told the RSMA audience that railroad customers would have trouble determining their TOFC charges under the regulations proposed by the ICC. "Since 1954 the railroads have spent considerable time and effort in acquainting the public with these five plans and the services available under each." He pointed out the fact that the ICC's proposed regulations "would create endless confusion." Mr. McCullough asked: "Do we need more regulation through the proposed rules which we have apparently been getting along without so well for many years? Wouldn't it be better to let the industry and shippers voluntarily put their own houses in order—without compulsion from the outside?"

PRR's assistant general solicitor, Paul R. Duke, told the RSMA that the proposed ICC rules can be judged ". . . by the presentations of various groups. For example, the freight forwarders and the short-haul motor carriers generally are opposed to Plan I and, consequently, support rules which would eliminate or restrict Plan I." Mr.Duke outlined the position of the long-haul motor carriers, who want rules that would eliminate Plans III, IV and, in one case, Plan V.

"I think I can fairly say that it is the position of the vast majority of railroads . . . that they object to the adoption of any rules which would retard the development of any of the present forms of TOFC service. The railroads are joined in this presentation by the vast majority of the shipping public."

● **Better statistics urged.** The financial side of TOFC operations was tackled from several directions. R. J. Dullard, auditor-revenues for the C&O, said that TOFC volume and revenue figures are "seriously misleading." He cited the need for accurate and meaningful performance figures so that traffic people can secure additional business that will pay off.

Misleading counts, stemming from two trailers on a flat car, plus accessorial charges and cloudy accounting techniques are producing unusual variation of "excess" empty penalty charge applications as well as rates for empty movements as the railroads try to guard against motor carriers using TOFC service as "a cheap and convenient way to return empty trailers to their home base."

Mr. Dullard noted that conflicting operating department and accounting department figures make accurate views difficult, but that C&O had formalized TOFC reporting into a reference run (designed by traffic, operating and accounting) issued monthly, that includes all information from origin to destination, from revenue to ton-miles, that is put into the hands of salesmen for selective selling. "Our rate people use this report extensively. It is a quick

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reference tool to measure the effectiveness of a rate action—volume before and volume after the rate action. The tonnage figures are utilized in costing procedures. The report provides material for station activity analysis. Its content can be used to determine interroad relationship."

He also told how C&O's Commodity Contribution Report, used principally by C&O's rate department and sales headquarters personnel, presents a quick summary of TOFC movements by commodity.

C&O's Patron Summary Report, "sequenced by customer," reflects information about inbound and outbound trailers, plus gross and net revenue, plus average per trailer factors. "This report provides a quick and complete summary of an account's activity. It was designed primarily for our field sales force."

Finally, Mr. Dullard described C&O's TOFC Weekly Flash Report which "is arranged alphabetically by shipper locations and within them by consignee location. This report reflects the number of loaded Plan II and Plan III trailers shipped or received by on-line customers—for each week in a period representing the last 13 weeks. This report points out trends. It identifies new users of our service."

● **Profit and loss report.** The big C&O TOFC report, noted Mr. Dullard, is the Profit and Loss Report. "This is the big one, the one that provides basic material for top management planning and decision-making exercises. This is a quarterly report and reflects current quarterly activity, current year-to-date and last year-to-date results. Revenues and costs (including rail, trailer rental, rail car, cartage, rail overhead and loss and damage costs) are reflected and listed by the various plans.

"The report reflects business indices and measurements—specifically, revenue trailers, carloads, revenue per trailer, revenue per car, and contribution as **per cent** of revenue. It also reflects dollars invested in TOFC facilities, equipment and Trailer Train stock. The real purpose of this report is to provide top management with a measurement for evaluating TOFC traffic. That measurement is net contribution dollars."

Mr. Dullard noted that the reports reflected C&O's accounting department's approach toward "developing a series of informative reports which will enhance the effectiveness of the traffic department in its pricing activities and sales strategy decisions."

Roy L. Milbourne, director of NYC's Flexi-Van sales and services, told the RSMA audience of his railroad's estimate of present and future TOFC markets. He predicted that "cost plus" will dominate future TOFC operation, that containers will eventually supplant trailers, that solid container trains, traveling at high speeds, will pull major terminals even closer together, that transit and stop-offs to unload will be introduced—and that motor carrier net revenues will rise to unprecedented heights as a result of Plan III and Plan II pick-up and delivery work.

Mr. Milbourne cited NYC's reason for TOFC optimism: Flexi-Van revenue per trip came to $545 compared with average box car revenue of $163; box car revenue per month came to $407 compared to $4,400 for Flexi-Van; box cars averaged 43% empty mileage, compared to Flexi-Van's 9%.

NYC, Seatrain Plan Puerto Rican Trade

Seatrain Lines will begin offering a new combination piggyback-fishyback service May 15 with the inauguration of a weekly service between New York and San Juan, Puerto Rico.

Cooperating in the program will be the New York Central, which will utilize its 40-foot Flexi-Van dry trailers in the operation. Seatrain's ships, the Seatrain Savannah and the Seatrain New York will also carry Fruit Growers Express refrigerator trailers and the company's own Seamobile containers.

Roy Milbourne, director of Flexi-Van sales for the NYC, said the railroad would interchange its trailers with the steamship company's. Because the railroad maintains pools for Flexi-Van equipment at strategic interior U.S. points, shippers in the Midwest, for example, will be able to get Flexi-Van equipment on request once space has been reserved by Seatrain. Carried two to a flat car, they can then be routed to New York and transferred to a ship for Puerto Rico.

Shippers of perishable freight will be supplied with 40-foot refrigerator trailers supplied by Fruit Growers Express, a subsidiary of the Pennsylvania and Burlington.

Seatrain is now constructing in San Juan a $1 million railroad car and trailer-handling facility, and the Puerto Rican Ports Authority is building a $600,000 pier adjacent to it. When these are completed at the end of the year, the company will be able to make full use of its specialized ships, which are built to carry loaded freight cars.

Although the rail cars will not go beyond the terminal area—Puerto Rico has no railroads—bulk commodities will be able to be moved intact to that point, eliminating numerous handlings enroute. This type of operation, a company spokesman said, will transfer the breakdown point from a wholesale to a retail operation.

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YOU OUGHT TO KNOW

Four passenger-car builders—Budd, St. Louis Car, Pullman-Standard and Hitachi New York—have submitted proposals to the Port Authority Trans-Hudson Corp. for the design and manufacture of between 200 and 300 new rapid-tranit cars for PATH's Hudson tubes. PATH says the proposed designs will undergo an intensive, three-month-long technical evaluation by leading transit-system experts, industry consultants and the New York Port Authority's own technicians. No contract will be awarded, however, until there is a final court decision on the legality of PATH's acquisition of tubes formerly operated by the Hudson & Manhattan (RA, April 22, p. 29).

Philadelphia's success with its back-to-the-rails commuter program (under which the city helps pay the cost of frequent-service, low-fare suburban trains) has shown that "the public wants and will use better transportation service, properly priced, when it is made available to them," says Mayor James H. J. Tate. He reports continued increases in the number of passengers riding the Pennsylvania and Reading trains involved in the widening program.

New "ransom shipments" to Cuba have brought to nearly 600 the number of freight cars the railroads have moved free as their contribution to the prisoner-exchange program. More than 40 railroads have participated in the movement of the goods—principally canned baby foods, drugs and insecticides.

Abandonment of the Rutland has been held up for three months by a federal court, in response to a request from the state of Vermont, which is negotiating with other carriers to take over parts of the 350-mile line. Still to come is a court ruling on a rail union's suit to block abandonment of the road.

Maj. Gen. I. Sewell Morris, who retired April 30 as commander of the Defense Traffic Management Service, has joined the Association of American Railroads as assistant vice president on the staff of Vice President Philip A. Hollar. General Morris will serve as a specialist in mobilization planning and transportation preparedness. Just prior to his retirement, General Morris was awarded the Distinguished Service Medal.

If railroads are nationalized, "trucks and barges had better watch out," Thomas O. Broker, Nickel Plate's vice president and general counsel, told the Traffic Club of Cleveland. "When their [trucks' and barges'] regulator, promoter and taxing authority also becomes their direct competitor instead of a generous partner and patron in their competition with the railroads, independently-operated truck and water carriers, both private and for-hire, won't be long for this world."

"Unneeded federal interference" in local affairs is the U.S. Chamber of Commerce's description of mass-transit legislation now before Congress. Continuing its campaign against the transit-aid bill (which in its present, Senate-approved version would provide federal grants of up to $350 million and federal-guaranty of loans in the same amount), the Chamber has told its members that "an efficient mass transportation system can do much to bolster employee morale and attract the type of skilled workers you need in your operation [but] any problem in this regard can be solved by local interests themselves, without subsidies from the federal government."

Fares have been reduced by the New York Central on its trains running between New York City and Montreal. The cuts for both coach and first-class round-trips amount to as much as 27% below the previous rates.

A uniform time system would prevent much unnecessary confusion and inconvenience now experienced by travelers and shippers, a railroad spokesman told the Senate Commerce Committee last week. Park M. Roeper, Pennsylvania's vice president—transportation and maintenance, called S. 1033, which would modernize the 45-year-old Uniform Time Act, a "step in the right direction." Testifying on behalf of the AAR, Mr. Roeper said the present confusion is brought about by the irregular adoption of daylight time in the summer months. (RA, April 29, p. 70.)

Soo Line will help plant nearly a million seedling trees in a program to expand forest products resources in its territory. Participating for the second year in planting seedlings in North Dakota, Minnesota, Wisconsin and Upper Michigan, Soo, in cooperation with the North Dakota Forest Service, will establish an experimental tree farm near Enderlin and Lisbon, N.D., to develop techniques for increasing the economic value of timber stands in that area.

Canada's full potential in export markets can be realized only if there is maximum efficiency in transportation, Canadian Pacific President N. R. Crump told the 82nd annual meeting of CP shareholders at Montreal. "It is essential," he said, "that each form of transportation, public and private, bear the cost of all resources, public or private, used in the production of its services, and hence reflect these costs in the prices it charges."

Reading's 30 new trailers, being delivered by Trailmobile, incorporate features aimed at reducing damages to ladings and to the trailers themselves. Forward bulkheads and rear doors of the 40-foot, high-cube vans are cushioned with "Ethafoam" sheets. So trailers are better adapted for piggyback service, they have recessed front connection boxes, extra rear-door locks, and reinforced landing gears and fifth-wheel assemblies. New units will be part of Reading's revitalized LCL operation (RA, April 29, p. 60).

(Continued on next page)

YOU OUGHT TO KNOW CONTINUED

Anti-vandalism campaigns are being stepped up by the Jersey Central and the New Haven to curb accidents and cut property damage costs, principally from stonings. The JCL reported 56 trains stoned between March 1 and April 15, with injuries to four passengers and a trainman. The New Haven said its bill for window replacement alone last year amounted to $150,000. Informational campaigns have been aimed at juveniles and their parents, and right-of-way patrolling has been increased.

President Kennedy has proclaimed May 17 as National Defense Transportation Day, and the week beginning May 12 as National Transportation Week. He urged the nation "to participate together with the transportation industry, representatives of the armed forces, and other governmental agencies, in the observance of these occasions by appropriate ceremonies."

Commuters will get $1,000 each if they will stop riding the trains of the New York, Susquehanna & Western, according to an offer made by Irving Maidman, board chairman. The road is said to be losing more than $200,000 yearly in out-of-pocket costs in the daily operation of its three commuter trains. Observers, however, point out that some other people might join the road's 200 regular commuters to qualify for the $1,000.

The Railroad Retirement Board's Annual Report for 1962 can be secured from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. The price is 60 cents per copy. The report summarizes financial, administrative and legal developments in the programs under the Railroad Retirement and Unemployment Insurance Acts for the 1961-62 fiscal year. Statistical tables are also included.

Rapid transit officials and other transportation executives from throughout the nation will gather in Washington May 9-10 for the second annual meeting of the Institute for Rapid Transit. "The Economic Justification of Rapid Transit" is the theme of this year's meeting.

Communications seminars to give business executives a deeper insight into the importance of modern communications and information flow in corporate planning and operation will be launched later this month by the Bell Telephone System. Two different types of continuous sessions will be offered. The first will be a one-day seminar for top corporate executives with emphasis on the broad understanding of ways in which new communications methods can be applied to increasing business efficiency. Three-day seminars are designed primarily for communications and systems specialists and will expand upon the material used in the one-day meetings. Sessions, which will be free, will be limited to about 25 persons for each seminar. Seminars will be held at the United of America building in Chicago. Seminars for specialized interests, such as railroading are planned.

Budd's Railway Division is "in the strongest position of the past several years," President Edward G. Budd, Jr., told shareholders at their annual meeting at Philadelphia. The division's order backlog now stands at $25.8 million, highest since 1960 .

Carriers and shippers must "find ways to resolve their conflicting interests that will be acceptable to all, or the government will find a way that will be satisfactory to none," Charles H. Sturgeon, general traffic manager, B. F. Goodrich Co., told a Cleveland audience. He said "national survival comes first, and individual interests, second."

An injunction barring a strike by the Brotherhood of Railroad Trainmen against the Santa Fe was granted April 30 by District Court Judge Hoffman in Chicago. Judge Hoffman upheld the Santa Fe's claim that a strike would be a violation of Section 10 of the Railway Labor Act, which requires both carriers and unions to maintain the status quo while an emergency board deliberates. The 68 unresolved demands (of 198 issued by the BRT in 1956) are similar to the work rules involved in the national case, C. George Niebank, attorney for the Santa Fe said in requesting an injunction for the 30-day fact-finding period and the 30-day cooling off period of the Presidential emergency board. BRT President Charles Luna called most of the demands "insignificant" and said that the BRT merely was attempting to reduce established customs to written agreement. The proposed strike, on the eastern and western lines of the Santa Fe, "would starve the rest of the system," Walter L. More, Santa Fe vice president, personnel, testified.

Seaboard's 1963 earnings should be "some better" than those of last year, President John W. Smith told the annual meeting of stockholders at Richmond, Va. He reported first-quarter profits of $3,680,652, up $614,893 from the '62 figure.

Net income and freight revenues for Great Northern during first quarter 1963 each ran about $1 million ahead of totals for the same period last year. But, says President John M. Budd, three-month results would have been substantially higher had the road not been handicapped by a severe car shortage in February and March. The box-car shortage, affecting primarily the movement of grain and lumber, "eased somewhat in April, but the diminished size of the country's freight-car fleet continues to be of national concern."

Some 100 unit coal trains have been handled by the Pennsylvania since rate cuts ranging up to $1.50 a ton became effective April 1. One PRR spokesman's comment: "It looks like old times."

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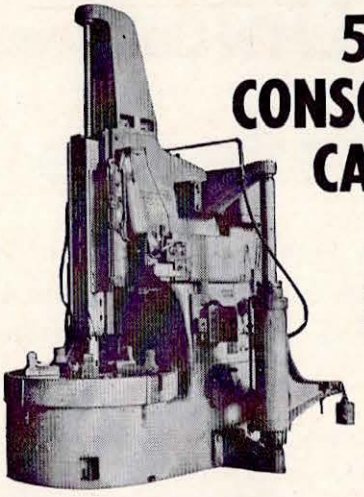

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Our Unions— A Challenge

Organizations grow strong as they wisely adapt their policies to changes, and these are many and vital on the railroads.

By way of greeting to the Brotherhood of Locomotive Engineers on its centennial, we have published in this issue, beginning on page 14, a friendly summary and appraisal of that organization's history. The BLE survived some adverse periods in its earlier years and developed into the powerful organization it came to be, in due course—for one reason, and one reason only. That reason was that it operated to serve effectively the interests of its members—while (most of the time, anyhow) conducting its affairs with wisdom and restraint.

We wish the BLE another century of effective service to its members—to which we append the amicable observation that unionist policies and practices of the past quarter-century or so are not necessarily those that are going to build union prosperity and power in the years ahead. Conditions change and policies (those of both management and unions) must change with them.

The operating brotherhoods were fully recognized by railroad managements many decades before there was any law which required such recognition. When the New Deal came along, legislation was enacted designed primarily to strengthen labor organizations in industries that had been resisting unionism. (The railway brotherhoods didn't need this intervention, since they were already strongly established.) This legislation encouraged union militancy in the newly organized industries and—rivalry being what it is among union leaders—some of this militancy spread by contagion to the railway unions.

Belligerency on either side of the railroad bargaining table is about as appropriate as it would be for a fellow to carry a six-shooter with him to church on a Sunday morning. There are no problems between railway unions and managements that cannot be settled if there is sincere effort to do so. But neither management nor union leaders can avoid confronting the fact that railroad traffic and earnings have been on the toboggan, practically since World War II.

This change lays the obligation on all responsible railroaders—whether managers or union leaders—to do everything they can to improve the competitive position of railroad service and prices. Railroad managements would be false to their obligation, not only to railroad owners but to railroad employees as well, if they were to temporize any longer with working rules that are wasteful of high-priced labor and are reducing the railroads' ability to attract competitive traffic.

In last week's Railway Age, our Walter Taft reported a Washington speech by George Leighty of the Railway Labor Executives' Association, in which Mr. Leighty opposed the freedom the railways are seeking (and which President Kennedy is advocating for them) to make effective competitive rates. Can anyone imagine John L. Lewis making a public speech advocating a course of action which would injure the coal industry in its efforts to sell its product?

To what degree the BLE and the heads of the other operating brotherhoods may share Mr. Leighty's inexplicable point of view, we do not know. It is the charitable course to give them the benefit of the doubt. Mr. Leighty was also quoted in an April 19 Associated Press dispatch as saying that the railroad industry "as a whole is actually in the healthiest financial state in its history." With the railroads at the lowest rung of the scale of all U.S. industry in their ratio of earnings to assets, the logic of Mr. Leighty's brand of economic reasoning eludes this paper **entirely.**

Let's Have Super-Railroads

AAR's President Loomis—in a talk reported in last week's issue—outlined a "fabulous era of super-railroads" which will come into being if remedial measures embodying President Kennedy's program (plus modernized working rules and progress with mergers) are adopted. If union leaders will join with management in helping to put this program into effect, Mr. Loomis said, "I don't think there's anything we couldn't do for both railroaders and the public."

The union leaders know Mr. Loomis from long experience as a man of integrity, and fairness to them. They cannot question his sincerity in this statement of his.

What could unionists lose by giving a thoroughgoing trial to such a course? Isn't it a wiser course —more likely to yield gratifying results—than a negative attitude? Is it realistic to attempt to squeeze more and more blood out of a smaller and smaller turnip? Wouldn't it be smarter, instead, to fertilize the turnip for a change?

The BLE and the other brotherhoods grew strong by following policies which were realistic in the light of circumstances surrounding them at the time. They will retain and increase their strength for a second hundred years, by behaving with similarly wise realism under the wholly new conditions of today.

We sincerely wish them the wisdom and skill in adaptation that will assure them and the railroads a long and prosperous future.

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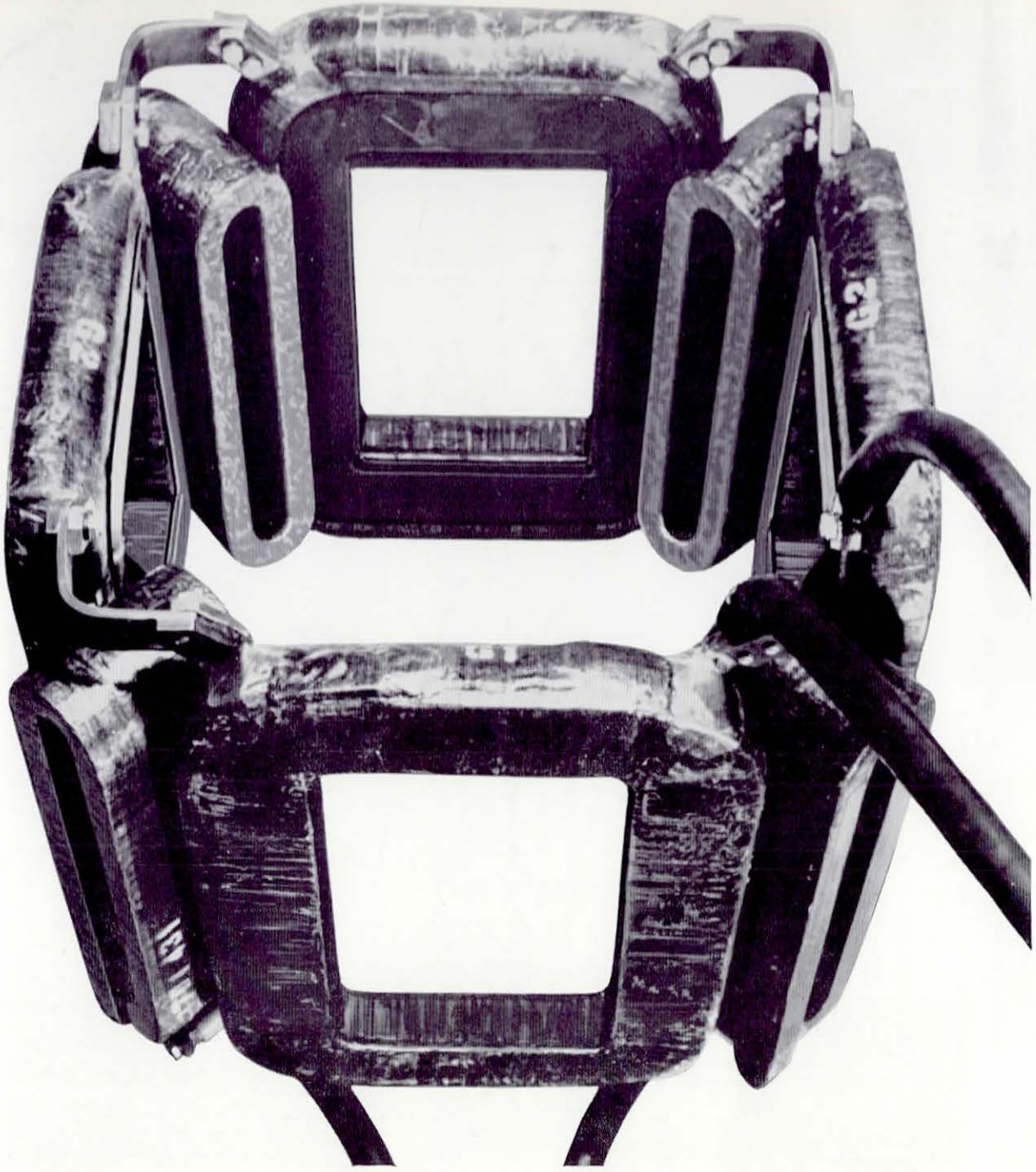

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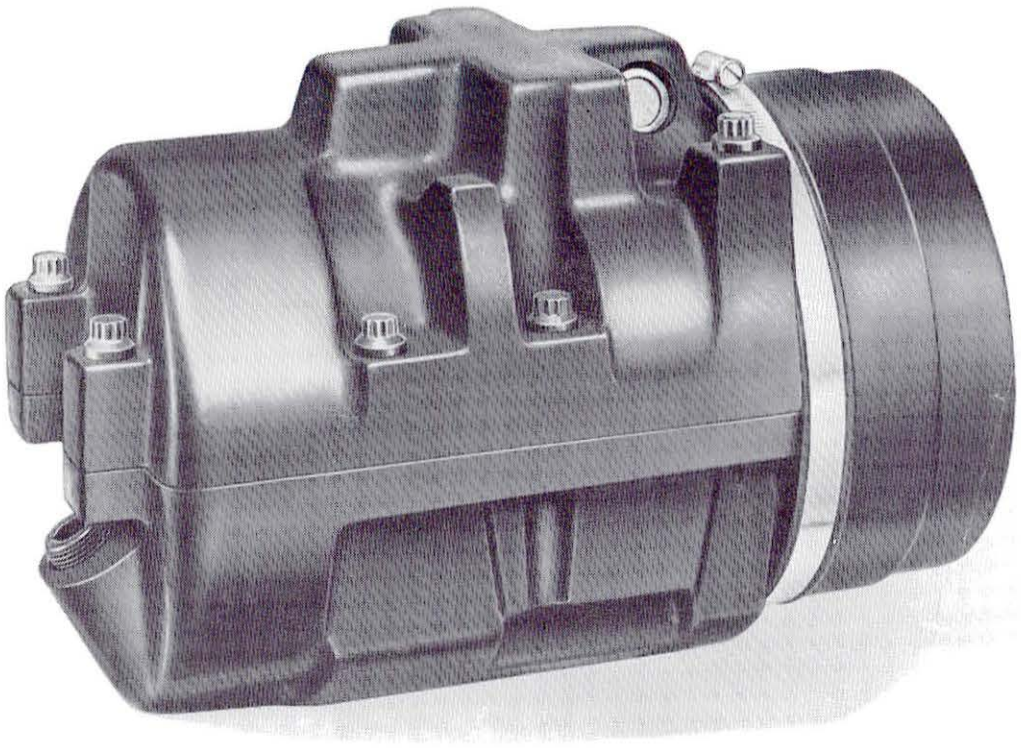

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